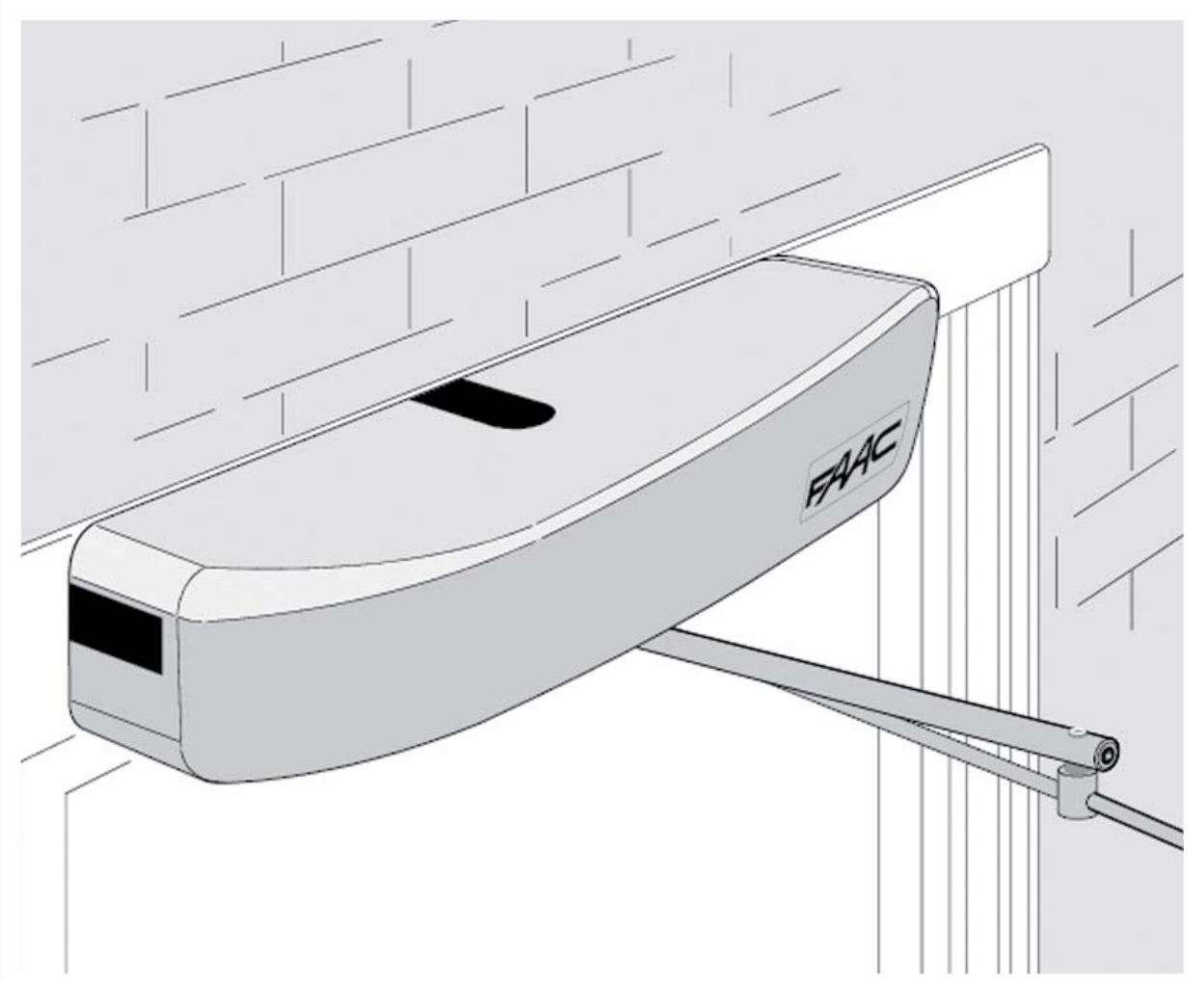
Installation Manual

950



Door Automation

FAAC

Leading the way ...

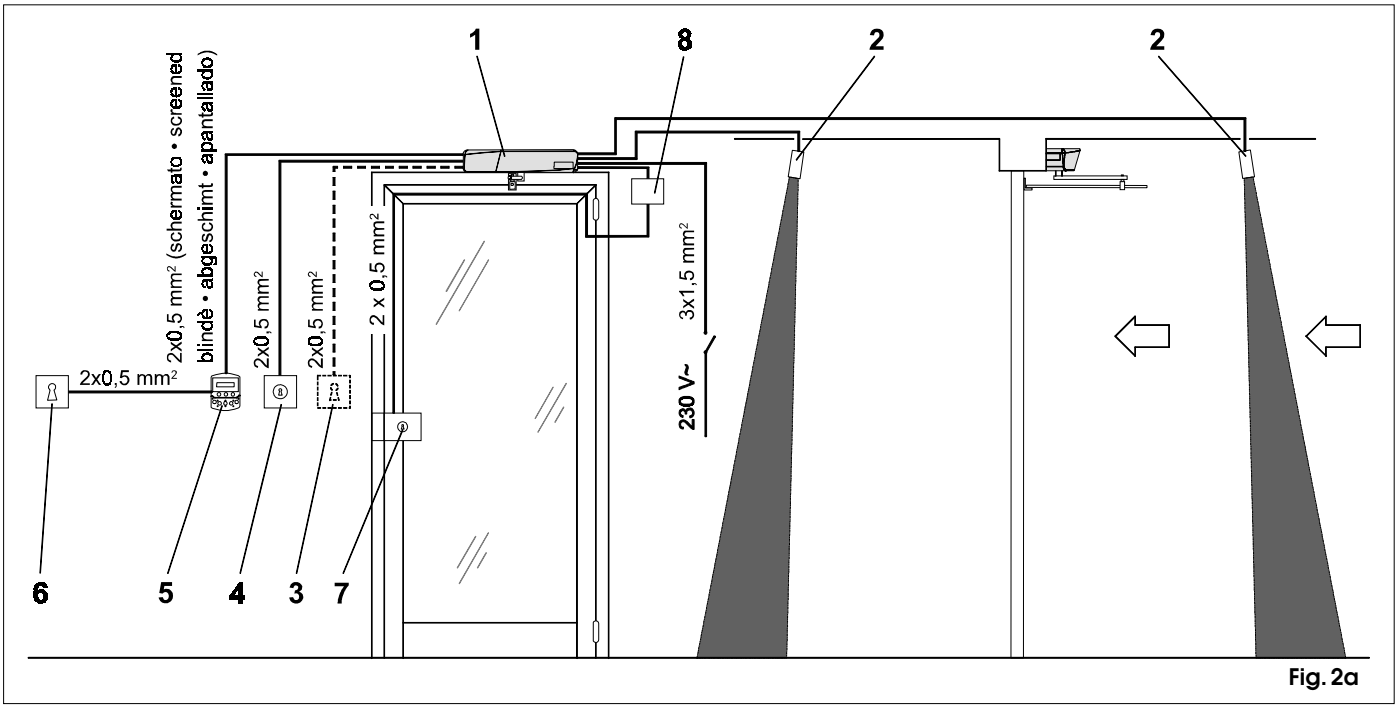


Fig. 2a

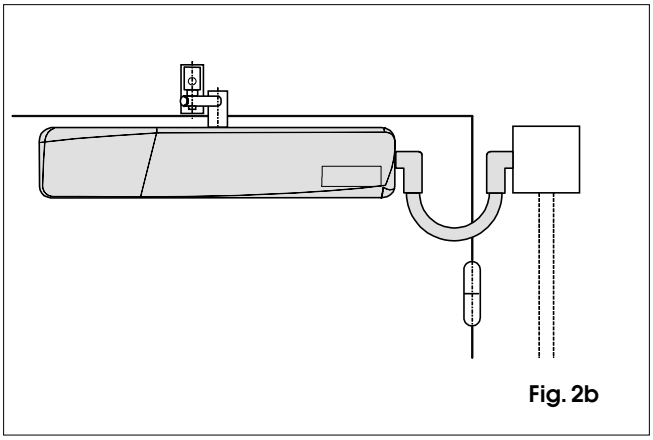


Fig. 2b

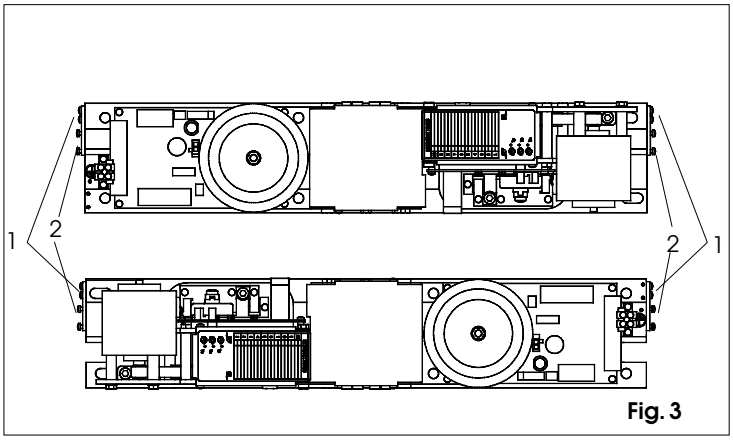


Fig. 3

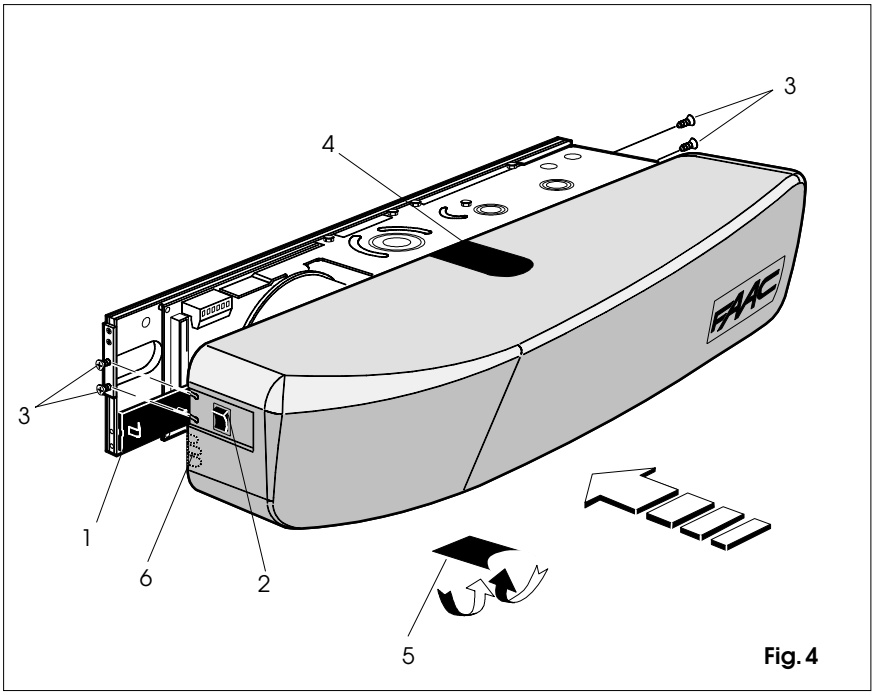


Fig. 4

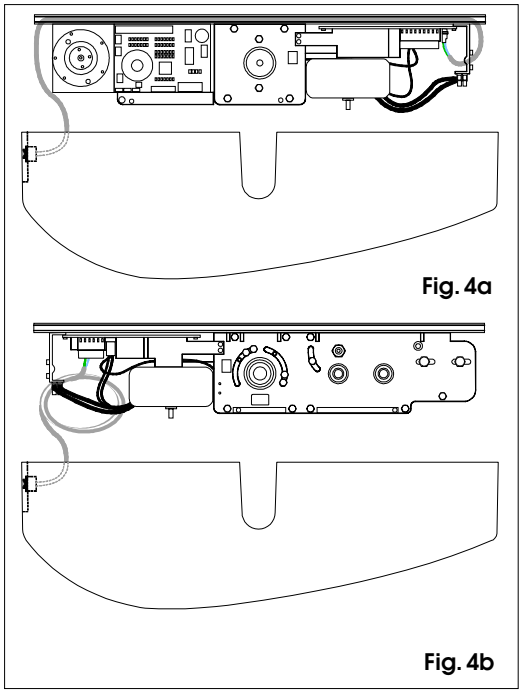


Fig. 4a

Fig. 4b

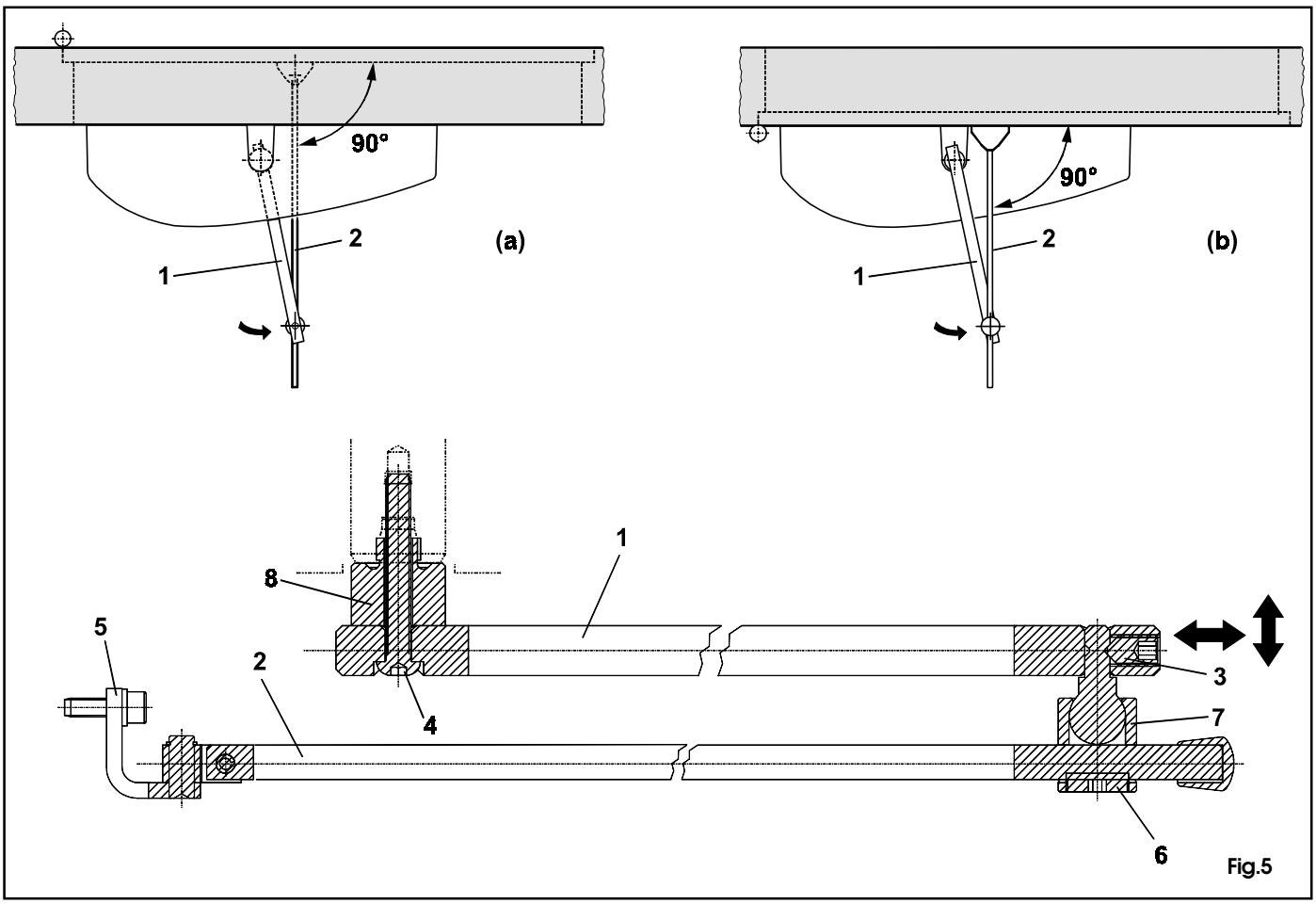


Fig.5

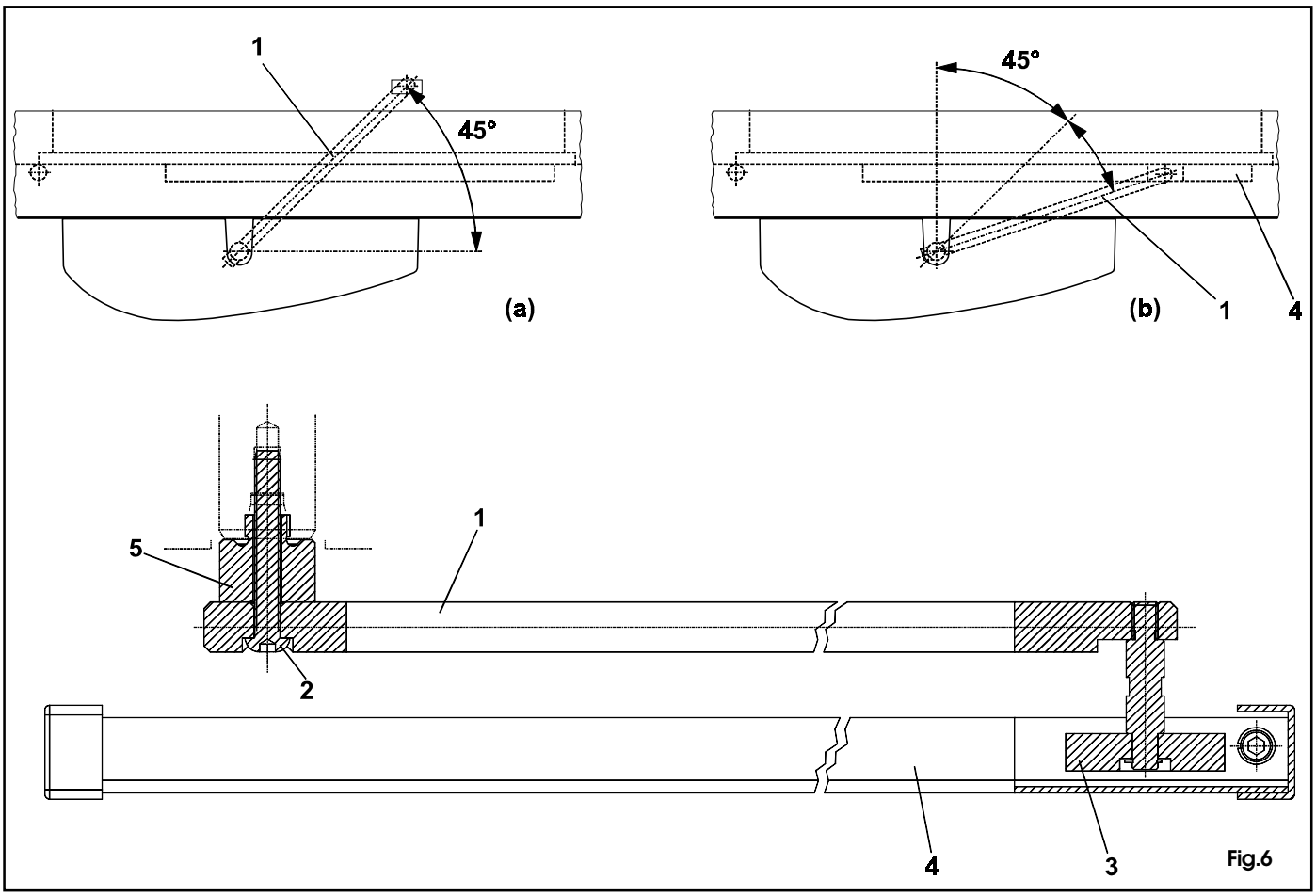
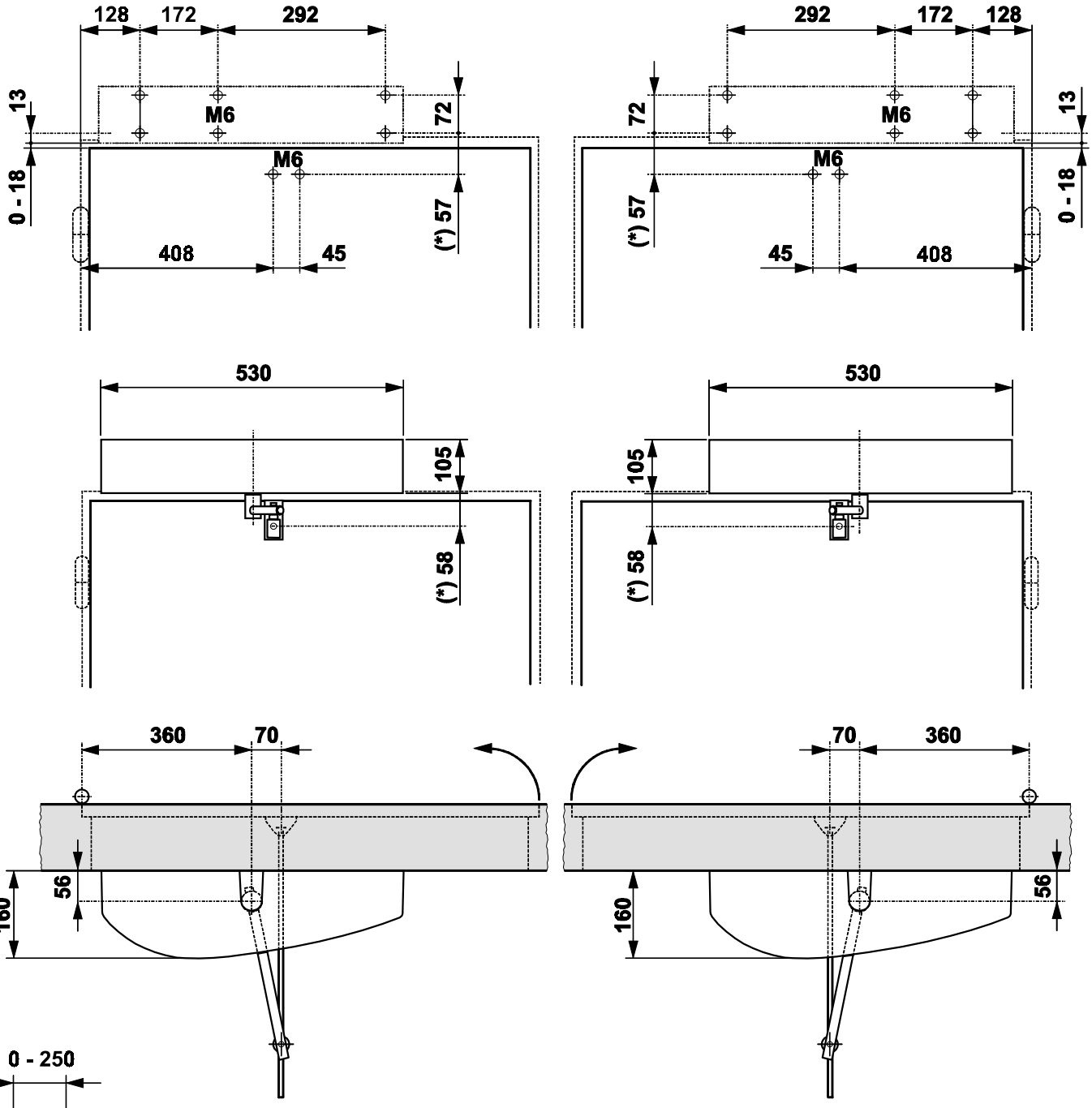


Fig.6

Tav.A: MONTAGGIO SULL'ARCHITRAVE (BRACCIO ARTICOLATO A SPINGERE) · TABLE A: LINTEL MOUNTING (PUSHING ARTICULATED ARM)
SCHÉMA A: MONTAGE SUR LE LINTEAU (BRAS ARTICULÉ Á POUSSER) · ÜBERSICHT A: STURZEINBAU (DRÜCK-GELENKARM)
LÁM. A: MONTAJE EN EL DINTEL (BRAZO ARTICULADO DE EMPUJE)

Piano di foratura · Drilling template · Schéma de perçage · Bohrbild · Plano de perforación



(*) Quota con albero standard.
Nel caso fosse necessario aumentare la distanza tra l'operatore ed il braccio, utilizzare le prolunghe modulari opzionali.
Ciacuna prolunga aumenta il valore di altezza standard di 30 mm. E' suggeribile non montare più di 2 prolunghe .

(*) Distance with standard extension.
If a greater distance between the operator and the arm is required, add the optional modular extensions.
Each modular extension increases the standard height of 30 mm. It's advisable not to place more then 2 extensions.

(*) Cote avec arbre standard.
Dans le cas d'installation nécessitant une plus grande distance entre l'opérateur et le bras, utiliser les rallonges modulaires en option.
Chaque rallonge augmente la hauteur standard de 30 mm. Il est conseillé de ne pas monter plus de 2 rallonges.

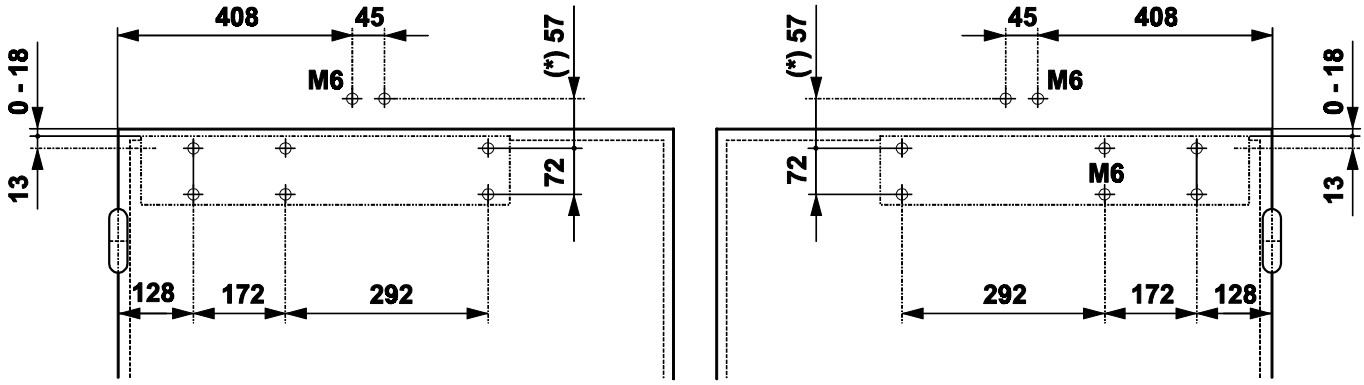
(*) Quota con albero standard.
Nel caso fosse necessario aumentare la distanza tra l'operatore ed il braccio, utilizzare le prolunghe modulari opzionali.
Ciacuna prolunga aumenta il valore di altezza standard di 30 mm. E' suggeribile non montare più di 2 prolunghe .

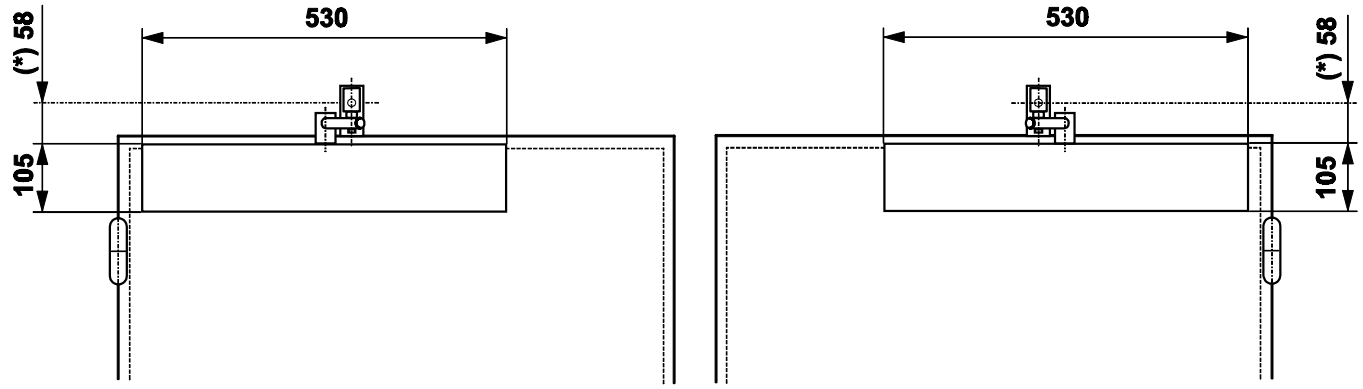
(*) Cota con eje estándar.
Si fuera necesario aumentar la distancia entre el actuador y el brazo, utilizar las prolongaciónes modulares opcionales.
Cada prolungación aumenta la altura del eje de 30 mm. Se recomanda de no instalar mas de 2 prolongaciónes modulares.

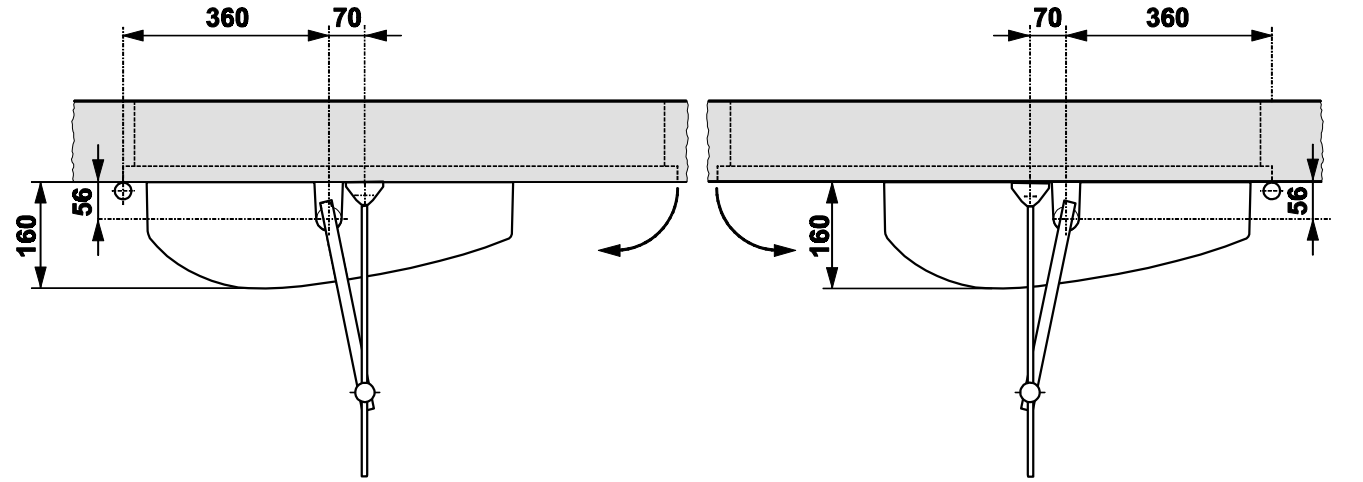
Quote in mm · Dimensions in mm · Cotes en mm · Maßangaben in mm · Cotas en mm

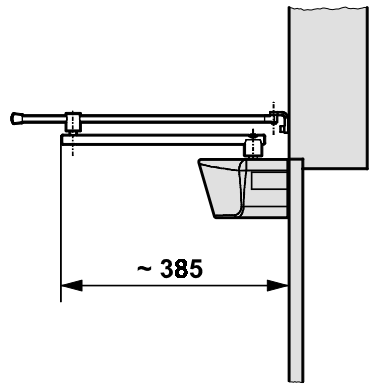
Tav.B : MONTAGGIO SULLA PORTA (BRACCIO ARTICOLATO A SPINGERE) · TABLE B: DOOR MOUNTING (PUSHING ARTICULATED ARM)
SCHÉMA B: MONTAGE SUR LA PORTE (BRAS ARTICULÉ Á POUSSER) · ÜBERSICHT B: TÜREINBAU (DRÜCK-GELENKARM)
LÁM. B: MONTAJE EN LA PUERTA (BRAZO ARTICULADO DE EMPUJE)

Piano di foratura · Drilling template · Schéma de perçage · Bohrbild · Plano de perforación









(*) Quota con albero standard.
Nel caso fosse necessario aumentare la distanza tra l'operatore ed il braccio, utilizzare le prolunghe modulari opzionali.
Ciacuna prolunga aumenta il valore di altezza standard di 30 mm. E' suggeribile non montare più di 2 prolunghe .

(*) Distance with standard extension.
If a greater distance between the operator and the arm is required, add the optional modular extensions.
Each modular extension increases the standard height of 30 mm. It's advisable not to place more then 2 extensions.

(*) Cote avec arbre standard.
Dans le cas d'installation nécessitant une plus grande distance entre l'opérateur et le bras, utiliser les rallonges modulaires en option.
Chaque rallonge augmente la hauteur standard de 30 mm. Il est conseillé de ne pas monter plus de 2 rallonges.

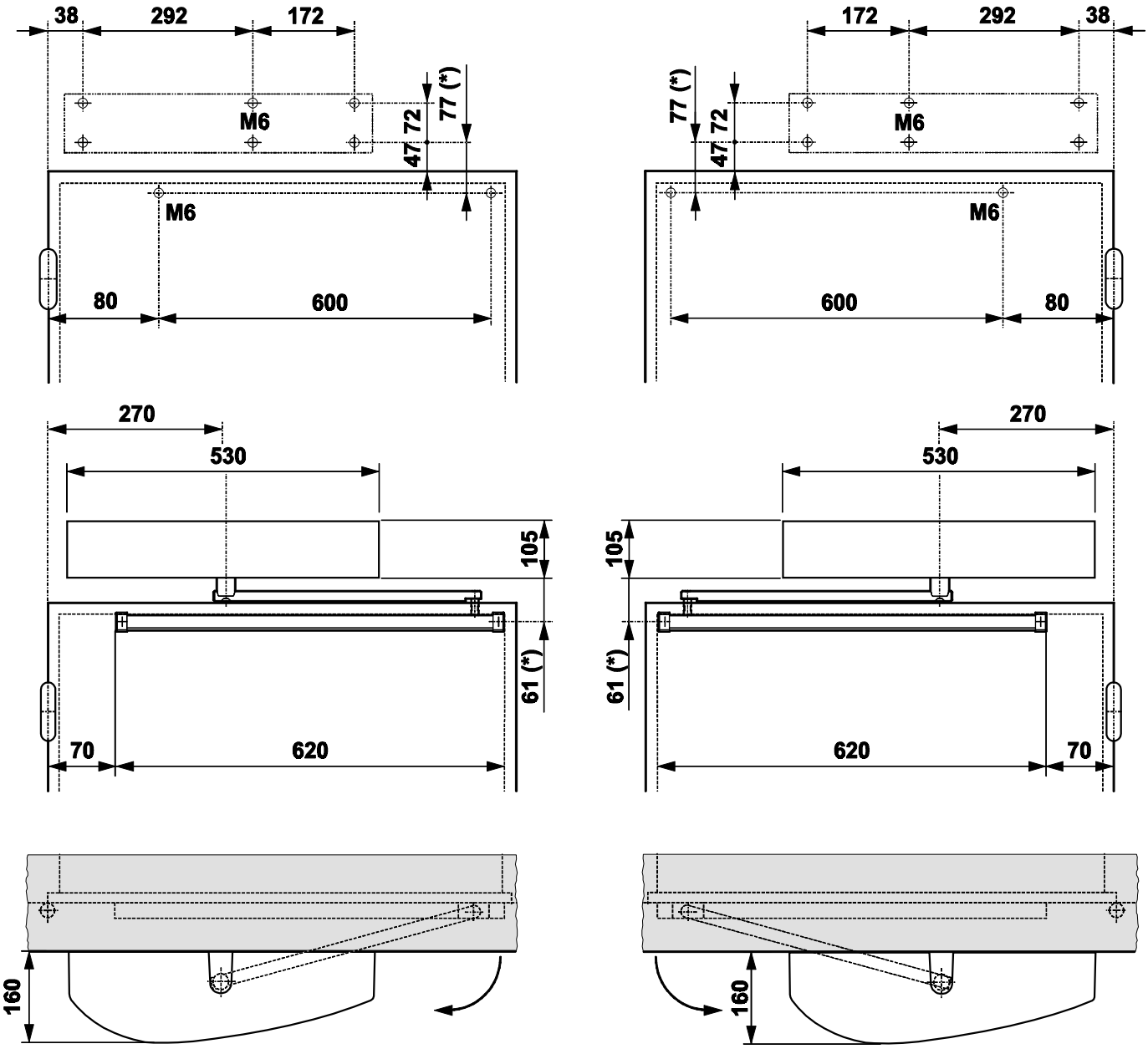
(*) Quota con albero standard.
Nel caso fosse necessario aumentare la distanza tra l'operatore ed il braccio, utilizzare le prolunghe modulari opzionali.
Ciacuna prolunga aumenta il valore di altezza standard di 30 mm. E' suggeribile non montare più di 2 prolunghe .

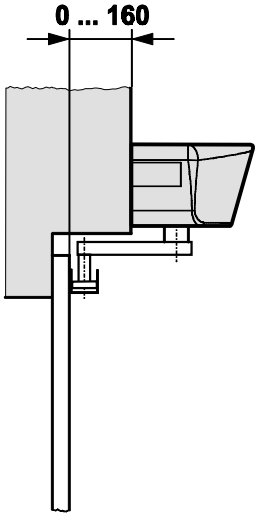
(*) Cota con eje estándar.
Si fuera necesario aumentar la distancia entre el actuador y el brazo, utilizar las prolongaciónes modulares opcionales.
Cada prolungación aumenta la altura del eje de 30 mm. Se recomanda de no instalar mas de 2 prolongaciónes modulares.

Quote in mm · Dimensions in mm · Cotes en mm · Maßangaben in mm · Cotas en mm

Tav.C : MONTAGGIO SULL'ARCHITRAVE (BRACCIO A PATTINO L=330mm) · Table A: LINTEL MOUNTING (SLIDING ARM L=330mm)
Schéma A: MONTAGE SUL LE LINTEAU (BRAS Á PATIN L=330mm) · Übersicht A: STURZEINBAU (GLEITARM L=330mm)
Lám. A: MONTAJE EN EL DINTEL (BRAZO CON PATÍN L=330mm)

Piano di foratura · Drilling template · Schéma de perçage · Bohrbild · Plano de perforación





(*) Quota con albero standard.
Nel caso fosse necessario aumentare la distanza tra l'operatore ed il braccio, utilizzare le prolunghe modulari opzionali.
Ciacuna prolunga aumenta il valore di altezza standard di 30 mm. E' suggeribile non montare più di 2 prolunghe .

(*) Distance with standard extension.
If a greater distance between the operator and the arm is required, add the optional modular extensions.
Each modular extension increases the standard height of 30 mm. It's advisable not to place more then 2 extensions.

(*) Cote avec arbre standard.
Dans le cas d'installation nécessitant une plus grande distance entre l'opérateur et le bras, utiliser les rallonges modulaires en option.
Chaque rallonge augmente la hauteur standard de 30 mm. Il est conseillé de ne pas monter plus de 2 rallonges.

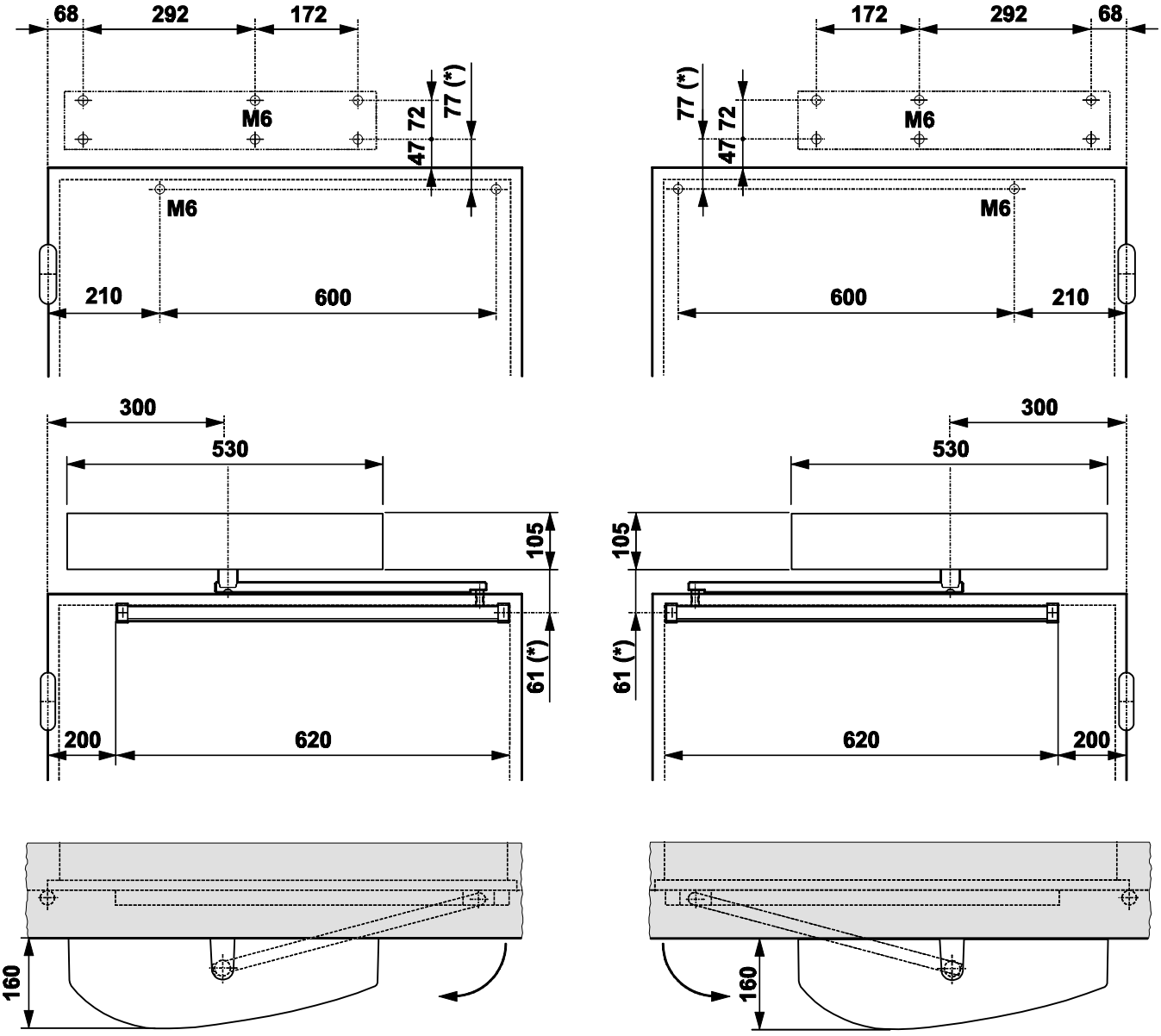
(*) Quota con albero standard.
Nel caso fosse necessario aumentare la distanza tra l'operatore ed il braccio, utilizzare le prolunghe modulari opzionali.
Ciacuna prolunga aumenta il valore di altezza standard di 30 mm. E' suggeribile non montare più di 2 prolunghe .

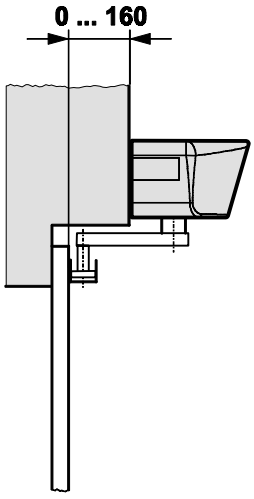
(*) Cota con eje estándar.
Si fuera necesario aumentar la distancia entre el actuador y el brazo, utilizar las prolongaciónes modulares opcionales.
Cada prolungación aumenta la altura del eje de 30 mm. Se recomanda de no instalar mas de 2 prolongaciónes modulares.

Quote in mm · Dimensions in mm · Cotes en mm · Maßangaben in mm · Cotas en mm

Tav.D : MONTAGGIO SULL'ARCHITRAVE (BRACCIO A PATTINO L=430mm) · Table A: LINTEL MOUNTING (SLIDING ARM L=430mm)
Schéma A: MONTAGE SUL LE LINTEAU (BRAS Á PATIN L=430mm) · Übersicht A: STURZEINBAU (GLEITARM L=430mm)
Lám. A: MONTAJE EN EL DINTEL (BRAZO CON PATÍN L=430mm)

Piano di foratura · Drilling template · Schéma de perçage · Bohrbild · Plano de perforación





(*) Quota con albero standard.
Nel caso fosse necessario aumentare la distanza tra l'operatore ed il braccio, utilizzare le prolunghe modulari opzionali.
Ciacuna prolunga aumenta il valore di altezza standard di 30 mm. E' suggeribile non montare più di 2 prolunghe .

(*) Distance with standard extension.
If a greater distance between the operator and the arm is required, add the optional modular extensions.
Each modular extension increases the standard height of 30 mm. It's advisable not to place more then 2 extensions.

(*) Cote avec arbre standard.
Dans le cas d'installation nécessitant une plus grande distance entre l'opérateur et le bras, utiliser les rallonges modulaires en option.
Chaque rallonge augmente la hauteur standard de 30 mm. Il est conseillé de ne pas monter plus de 2 rallonges.

(*) Quota con albero standard.
Nel caso fosse necessario aumentare la distanza tra l'operatore ed il braccio, utilizzare le prolunghe modulari opzionali.
Ciacuna prolunga aumenta il valore di altezza standard di 30 mm. E' suggeribile non montare più di 2 prolunghe .

(*) Cota con eje estándar.
Si fuera necesario aumentar la distancia entre el actuador y el brazo, utilizar las prolongaciónes modulares opcionales.
Cada prolungación aumenta la altura del eje de 30 mm. Se recomanda de no instalar mas de 2 prolongaciónes modulares.

Quote in mm · Dimensions in mm · Cotes en mm · Maßangaben in mm · Cotas en mm

ENGLISH

CE DECLARATION OF CONFORMITY FOR MACHINES

(DIRECTIVE 98/37/EC)

Manufacturer: FAAC S.p.A.

Address: Via Benini, 1
40069 - Zola Predosa
BOLOGNA-ITALY

Declares that: 950 BM automated system,

- is built to be integrated into a machine or to be assembled with other machinery to create a machine under the provisions of Directive 98/37/EC;

- conforms to the essential safety requirements of the following EEC directives:

  73/23 EEC and subsequent amendment 93/68/EEC.
  89/336 EEC and subsequent amendment 92/31/EEC and 93/68/EEC

  and also declares that the machinery must not be put into service until the machine in which it will be integrated or of which it will become a component has been identified and declared as conforming to the provisions of Directive 98/37/EC.

Bologna, 01 January 2003

The Managing
Director

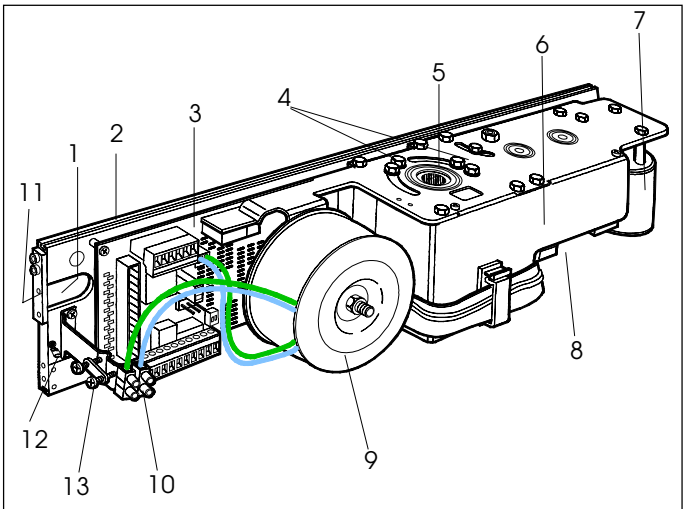
A. Bassi

ENGLISH

FAAC 950 BM

The 950 BM automated system for swing doors is an enbloc unit consisting of an electromechanical device that allows door opening to be controlled by means of a driving arm. The door is re-closed by a spring system.
The operator can be installed either on the lintel or on the door structure itself.
The ABS-plastic protective casing houses the electronic control unit used to program and control the operation of the system.
In the event of a power failure the door can be pushed (or pulled) open manually.

1. DESCRIPTION AND TECHNICAL CHARACTERISTICS



1 Cable hole
2 Support profile
3 950 I/O electronic control unit
4 Adjustment of internal mechanical stops.
5 Transmission shaft coupling
6 Protection for drive system and re-closure spring.
7 DC motor
8 950 MPS programming unit
9 Toroidal transformer
10 Mains power terminal board.
11 Casing securing bracket
12 Earth lug
13 Power cable terminal

Fig. 1

Table 1: Technical specifications of 950 BM Operator

Power supply	230 Vac (+6 -10%) - 50 (60) Hz
Absorbed power	100 W
Absorbed current	0,5 A
Electric motor	24 Vdc with encoder
Dimensions	530x105x160 mm (length x height x depth)
Weight	10 Kg
Operating ambient temperature	- 20 + 55 °C
Protection class	IP 23 (internal use only)
Dimensions and leaf max weight	see Table 3 (paragraph 1.1)
Use frequency	continuous
Operation in event of power failure	Manual push/pull opening
Configuration of driving arms	• pushing articulated arm (version for jamb depth 0 ÷ 250 mm) • sliding arm (arm length 430 mm) • sliding arm (arm length 330 mm)
Anti-crushing device	standard
Opening angle	see table 5-6
Opening speed	4 ÷ 10 s (adjustable)
Closing speed	4÷10 s (adjustable)

Table 2: Technical specifications of Control Board 950I/O and Control Board 950 MPS

Power supply	230 Vac (+6 -10%) - 50 (60 Hz)
Accessories power supply	24 Vdc / 500mA max
Electric lock power supply (N.O./N.C.)	24 Vdc / 500mA max
Standard operating functions (selector switch)	Open / Automatic / Manual (Night)
Adjustable functions (trimmer)	Opening speed - Closing speed Pause time
Selectable functions (microswitches)	Closing stroke - Standard/slide initialisation procedure Push and Go - Function selector switch (pos."2") STOP safety device operation - RS232 port
Terminal board outputs	Malfunction alarm signal - Electric lock power supply (N.O./N.C) - 24 Vdc accessories power supply - Door status signal Changeover relay controlled by Card Reader - "Two-leaf door" signal - "Interlock" signal
Terminal board inputs	Internal / external Commands - Emergency Command - Key Command - Card Reader Command - Fire-alarm Command STOP Safety device - CLOSING Safety device
Rapid connectors	KP-CONTROLLER (optional) - Minidec, Decoder or RP cards connection - Functions selector switch connection

1.1. APPLICATION LIMITS

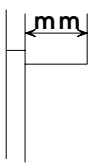
Important:To ensure correct application of the FAAC 950 BM unit the weight of the door must not exceed the value given in Table 3 referred to its length.
The maximum length of the leaf is 1400 mm.
The values of maximum weight vary according to the driving arm used.

For each driving arm there is also a different maximum value for the depth of the jamb (Table 4) beyond which it is not possible to install the system correctly.

Table 3: Application limits of 950 BM automated system

Leaf length (mm)	Max leaf weight (Kg) Pushing articulated arm	Max leaf weight (Kg) Sliding arm L=330mm	Max leaf weight (Kg) Sliding arm L=430mm
700	367	286	-
750	320	249	-
800	281	219	-
850	249	-	194
900	222	-	173
950	199	-	155
1000	180	-	140
1050	163	-	127
1100	149	-	116
1150	136	-	106
1200	125	-	97
1250	115	-	90
1300	107	-	83
1350	99	-	77
1400	92	-	71

Table 4: Max jamb depth

	**Pushing articulated arm**	**Sliding arm L=330**	**Sliding arm L=430**
	0 - 250	**0 - 160**	**0 - 160**

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1.2 DOOR MAX OPENING ANGLE

According to the type of mounting and respecting the installation dimensions shown in Tables A,B,C, or D, different door max. opening angles can be obtained according to the lintel thickness. Table 5 and 6 shows the maximum values of the opening angles that can be obtained in the different configurations.

Tab.5: Door max opening angle with pushing articulated arm.

Type of installation	Jamb depth (mm)	Max opening angle
operator on lintel	0	100°
operator on lintel	125	110°
operator on lintel	250	125°
operator on door	0	100°

Tab.6: Door max opening angle with sliding arm.

Type of installation	Jamb depth (mm)	Max opening angle
operator on lintel arm L=430 mm	0	90°
operator on lintel arm L=430 mm	160	105°
operator on lintel arm L=330 mm	0	90°
operator on lintel arm L=330 mm	160	90°

2. ELECTRICAL SETUP (fig. 2a Standard system)

① 950 BM operator
② Microwave radar / Passive infrared sensor
③ T20E outdoor key-operated selector switch (KEY command)
④ Emergency Closing/Opening pushbutton
⑤ KP-CONTROLLER programming unit (optional)
⑥ KP-CONTROLLER inhibition switch (optional)
⑦ 24 Vdc electric lock
⑧ Junction box

If the operator is installed on the door, make the electrical connections using a junction box and suitable commercially available pipes/unions (fig. 2b).

Notes: 1) To lay electric cables, use suitable rigid and/or flexible piping.
2) Always keep the low voltage accessory connection cables separate from the 230 V power cables. To avoid interference, use separate sheaths.

3. INSTALLATION

3.1. PRELIMINARY CHECKS

To ensure correct operation of the automated system the structure of the existing door must meet the following requirements:

- length and weight as specified in Table 3 (paragraph 1.1.);
- max. jamb depth as specified in Table 4;
- robust and rigid structure of the leaf;
- good condition of the existing hinges;
- smooth, uniform movement of the leaf with no abnormal friction during its entire travel;
- "neutral" position of the door during its entire travel. If the door tends to close or open, check the alignment of the hinges.
- Presence of mechanical travel stops.

3.2. MOUNTING THE OPERATOR

1) As regards the mounting position of the operator (on the lintel or on the door) and the type of arm to use (pushing or sliding), refer to the relevant mounting table and drill the holes required to mount the operator and the pulling arm.

N.B.: The two intermediate operator fixing holes are not in a central position (see Mounting tables). The holes are offset in order to ensure that the operator is mounted with the correct direction of rotation of the mechanism.
The mounting tables are the following:

Table A: LINTEL MOUNTING (PUSHING ARTICULATED ARM): Outward opening.
Table B: DOOR MOUNTING (PUSHING ARTICULATED ARM): Inward opening.
Table C: LINTEL MOUNTING (SLIDING ARM LENGTH 330mm): Inward opening.
Table D: LINTEL MOUNTING (SLIDING ARM LENGTH 430mm): Inward opening.

2) Mount the casing fixing brackets as shown in fig.3 according to the type of mounting to be made. Tighten the screws (fig.3-ref.1) and fit the screws (fig.3-ref2) without tightening them completely.
3) Mount the operator using the six M6 screws and washers provided.

Warning:
- The structure of the lintel (or the door) at the operator mounting position must not exhibit any significant deformation.
- The operator must be mounted parallel to the floor.

N.B.: If the sliding arm is to be used, the driving arm must be mounted before the operator is fixed on the lintel (see paragraph 3.3.2.).

3.3. MOUNTING THE DRIVING ARMS

3.3.1. MOUNTING THE PUSHING ARTICULATED ARM (fig.5)

1) Close the door.
2) Free arms (1) and (2) by loosening the fixing dowel (3) as shown in fig.5.
3) Fit arm (1) on the coupling of the operator transmission shaft by means of the standard shaft (8) and the screw (4) provided (fig.5). The arm must be mounted perpendicular to the closed door.

Note: If a greater distance between the operator and the arm is required, use the shaft modular extensions, available as accessories, until the required distance is reached. (see Table A/B).

4) Mount plate (5) of arm (2) on the door or the lintel using the two M6 screws and the washers provided (fig. 5). The installation dimensions are given in Table A/B.
5) Slacken the fixing screw (6) and assemble the two arms by tightening the dowel (3) (fig.5).
6) Turn arm (1) until arm (2) is perpendicular to the closed door or the lintel as shown in fig. 5 (a-b), sliding the spacer (7) along arm (2).
7) Tighten the fixing screw (6) between the two arms. The length of arm (2) is given in the relevant mounting tables. If necessary, cut off the section of the arm extending beyond the articulation and then cover its end using the cap provided (fig. 5).
8) Check manually that the door is free to open and close fully and that it comes to rest against the mechanical stops. If the door does not close correctly, adjust the return spring as described in paragraph 9.

Important: The two driving arms must never touch.

Note: it is advisable to always adjust the operator internal mechanical stops (fig.1 -ref 4), open/closed, so that they can be activated when the leaf mechanical stops are reached.

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3.3.2. MOUNTING THE SLIDING ARM (fig.6)

1) Mount arm (1) on the operator transmission shaft by means of the standard shaft (5) and the screw (2) provided (fig.6). The arm must be fitted pointing 45° outwards as shown in fig. 6(a).

Note: If a larger distance is required between the operator and the arm use the shaft modular extensions available as accessories, until the required distance is reached (see Table C/D).

Warning: Mount arm (1) on the transmission shaft before fitting the operator on the lintel (fig.6).

2) Insert the teflon slide (3) inside the sliding guide (4) (fig.6).
3) Pull arm (1) inwards manually as shown in fig. 6(b) and secure the sliding guide (4) by means of two M6 screws on the closed door as shown in Table C/D.
4) Check manually that the door is free to open and close fully and comes to rest against the mechanical travel stops. If the door does not close correctly, adjust the return spring as described in paragraph 9.

4. START-UP

1) Make the electrical connections to the 950 I/O electronic control unit as described in paragraph 6, and connect the mains power supply to the specific terminal (fig.1-ref.10) ensuring to crimp the earth wire to the lug (fig.1-ref.12) screwed to the support profile (fig.1-ref.2). Then tighten the terminal (fig.1-ref.13)
   To gain access to the control unit, pass the cables through the special conduit (fig.1-ref.1) or break the knockout areas on the casing sides (fig.4-ref.6).

IMPORTANT: When mounting the "sliding" arm or for opening angles greater than 90°, turn microswitch no. 2 to ON before connecting power to the system.

2) Close the door.
3) Power up the operator.
4) Check that the green LEDs LD1 and LD3 on the board 950MPS light up.
5) Check that the status signalling LEDs on the board 950I/O are in the default status shown in Table 7 .

N.B.: The default status of the LEDs with the door closed at rest is shown in bold type.

Table 7: Operation of the status signalling LEDs for 950 I/O board

LED	ON	OFF
LD1	**Accessories power present**	Accessories power absent
LD2	Card Reader active	**Card Reader inactive**
LD3	Internal sensor active	**Internal sensor inactive**
LD4	External sensor active	**External sensor inactive**
LD5	**Emergency inactive**	Emergency active
LD6	**STOP safety device inactive**	STOP safety device active
LD7	**CL safety device inactive**	CL safety device active
LD8	Key active	**Key inactive**
LD9	Fire-alarm active	**Fire-alarm active**

6) Run a SET-UP cycle as indicated in paragraph 4.1.

4.1. SET UP PROCESS

Once the system is powered up, hold down SW1 button for at least 5 sec., until the LD2 red LED on the 950MPS board lights up. The LED will start flashing to indicate that SET UP process is in progress. During this process the following parameters are set:
- measuring the mass of the door;
- determining the travel stop positions;

The door opens at low speed, then closes half way before switching back to opening.
Subsequent closure is performed by the return spring.
The process may be inhibited in any of the following conditions:
- function selector switch in the 2 (MANUAL/NIGHT) position or KP-CONTROLLER programming unit in MANUAL or NIGHT position.
- incorrect connection of the accessories (electric lock, control/safety devices);
- incorrect positioning of the programming unit microswitches.

Note: To repeat the initialisation procedure hold down the SW1 button for more than 5 seconds.
Check that door opens and closes correctly by sending an opening command to one of the following inputs: Internal Sensor, External Sensor or Key command. Set the trimmers (par.5.2) and program the microswitches (par.5.4) according requirements.

5. 950MPS ELECTRONIC CONTROL UNIT

5.1 LAYOUT AND DESCRIPTION

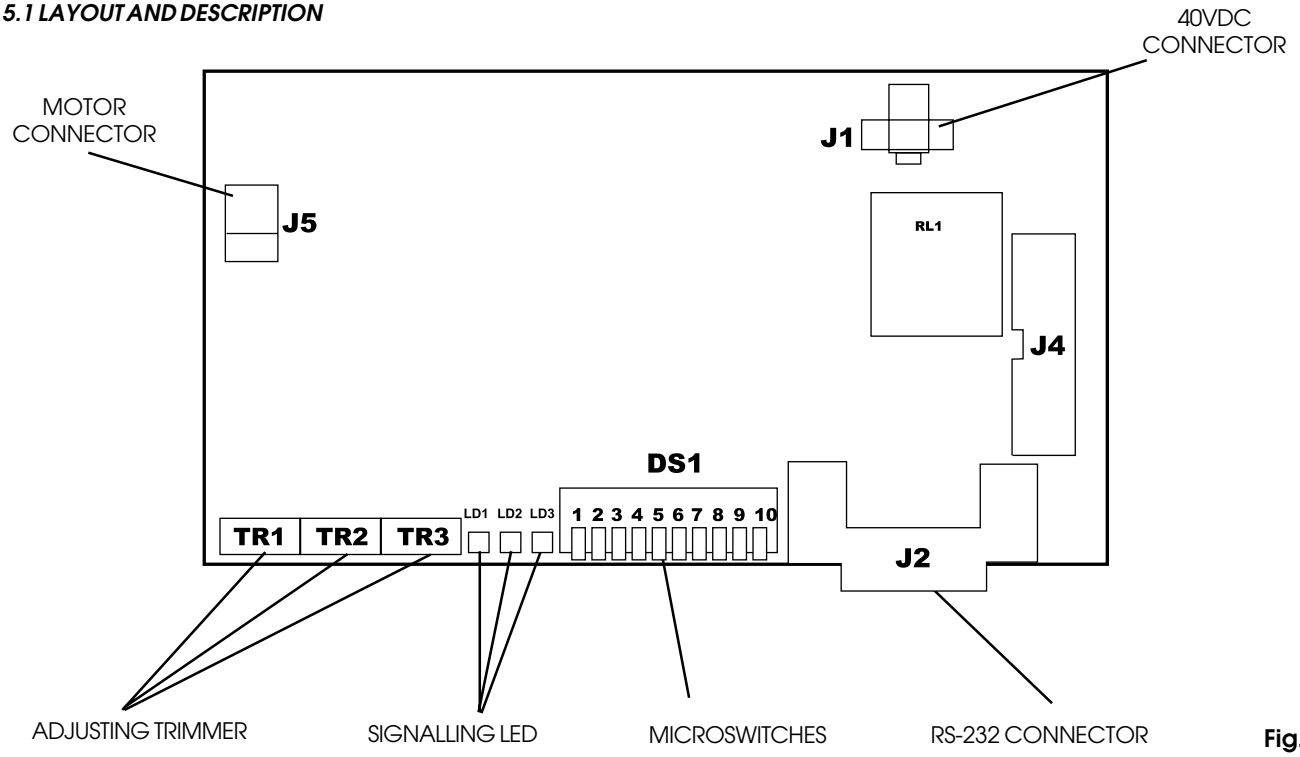

Fig. 8

ENGLISH

5.2. SETTING THE ADJUSTING TRIMMERS

The programming unit features trimmers (fig.8) which regulate the following parameters:

Trimmer TR1 to set the opening speed.
Setting from 4 to 10 seconds.

Trimmer TR2 to set the closing speed.
Setting from 4 to 10 seconds.

Trimmer TR3 to set the pause time (AUTOMATIC logic).
Setting from 0 to 30 seconds.

5.3. SIGNALLING LEDs

LD1 Led = Green LED - electric motor power supply.

LD2 Led = Red LED - indicates SET-UP/Alarm.

LD3 Led = Green LED - 5V power supply.

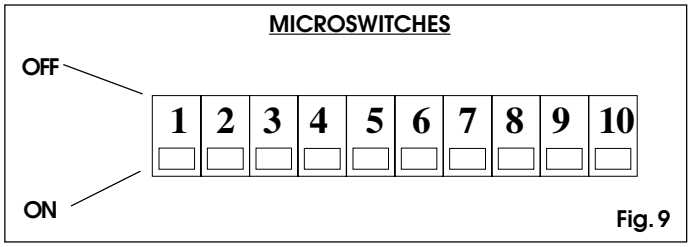

Fig. 9

5.4. PROGRAMMING THE MICROSWITCHES (fig.9)

The programming unit has a series of microswitches which allow the functions shown to be selected.
The system is supplied with all the microswitches in the **OFF** position.

5.4.1. MICROSWITCH No. 1 - CLOSING STROKE

This function enables the closed position force to be increased by further loading the transmission system after the door has reached the mechanical closure stop.
It is advisable to use this function to assist activation of the electric lock.

OFF = Function DISABLED
ON = Function ENABLED

5.4.2. MICROSWITCH No. 2 - SET-UP PROCESS

When mounting the "sliding" arm or for opening angles greater than 90°, this microswitch has to be enabled.

OFF = Function DISABLED
ON = Function ENABLED

5.4.3. MICROSWITCH No. 3 - SELECTOR FUNCTION ("2" POSITION)

This function allows the operating function to be selected with the selector switch in the "2" position.

OFF = MANUAL Function
ON = NIGHT Function

5.4.4. MICROSWITCH No. 4 - PUSH AND GO

When activated, this function enables the opening command to be given by pushing the closed door manually. It is sufficient to give the door an initial push/pull in the opening direction.

OFF = Function DISABLED
ON = Function ENABLED

WARNING: It is advisable not to enable this function if the door is subject to strong wind, according to its structure and dimensions, as this could activate the system's spontaneous opening or motion reversing.

5.4.5 . MICROSWITCHES Nos. 5/6/8/9 - INACTIVE

5.4.6. MICROSWITCH No. 7 - STOP SAFETY DEVICE

It makes it possible to detect activation of the STOP safety device during the entire door travel (COMPLETE) or to disable detection beyond 70° opening (REDUCED).

OFF = COMPLETE Function
ON = REDUCED Function

When the STOP safety control is ensured by an active sensor fitted on the leaf, if you enable the REDUCED function, the detection of any obstacle (e.g. side wall) is prevented which would cause interruption of the work cycle.

5.4.7 MICROSWITCH No. 10 - RS232 PORT

It makes it possible to enable the RS232 port connection to PC for software update. In normal use conditions, the dip switch is in OFF position.

OFF = Port DISABLED
ON = Port ENABLED

6. 950 I/O ELECTRONIC CONTROL UNIT

6.1 LAYOUT AND DESCRIPTION

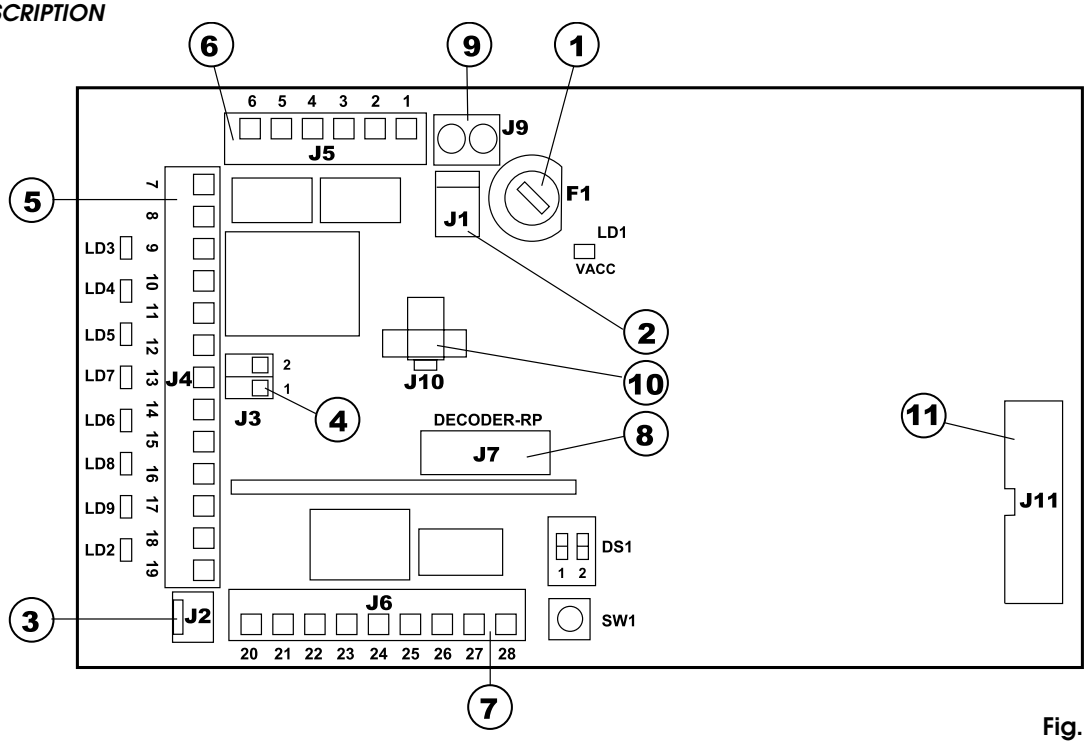

Fig. 10

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Warning: Always disconnect the electric power supply before carrying out any work on the control unit (connection, maintenance).

DS1 **No.2: Lock activation delay**
OFF = DISABLED
ON = ENABLED
If this dip-switch is enabled, the door movement is delayed by 500msec with respect to the electric lock command. If disabled, delay is 200 msec.
No.1: Inactive

SW1 **SET-UP pushbutton**
Hold down the SET-UP button for 5 sec. to start the set-up cycle.

① **FUSE F1** 4AT/230Vac - 5x20

② **J1 CONNECTOR** Transformer Secondary winding - fig. 10

③ **J2 CONNECTOR**
Rapid Connector of Manual/Night, Open, Automatic function selector switch

④ **J3 CONNECTOR** KP-Controller Connection

1 - 2 Connector of KP-Controller programming unit (optional) as shown in fig. 24.
Use a 2 x 0.5 mm² shielded cable ("bus" communication) for the connection. Respect the connection polarity as shown in figure 24.
Important: The maximum permissible length of the connection cable is 50 m.
To inhibit operation of the SD-KEEPER, make the jumper between terminals of the LOCK switch (fig.24).

⑤ **J4 TERMINAL BOARD** Inputs Connection (figs. 11, 12, 16)

7 - 8 GND
Accessories power supply Negative and contacts Common

9 **+24Vdc**
+24Vdc accessories power supply

10 **Internal Command - N.O. Contact**
Any pulse generator (pushbutton, sensor, etc.) which, by closing a contact, commands door opening.
To install several pulse generators as Internal Command, connect the N.O. contacts in parallel.

11 **External Command - N.O. Contact**
Any pulse generator (pushbutton, sensor, etc.) which, by closing a contact, commands door opening.
To install several pulse generators as External Command, connect the N.O. contacts in parallel.

12 **Emergency Command - N.C. Contact**
Any pulse generator (normally a pushbutton) which, by opening a contact, commands an emergency closure of the system. Alternatively this input can be used to command emergency opening by programming the system in a suitable manner using the KP-CONTROLLER programming unit (optional).
To install several emergency command devices, connect the N.C. contacts in series.
N.B.: If emergency command devices are not connected, jumper inputs **7** and **12**.
Attention: Using the KP-CONTROLLER programming unit, you can change the type of contact from N.C. to N.O. contact.

13 **CLOSURE Safety Command - N.C. Contact**
Any device (safety sensor, photocell, etc.) which, by opening a contact, has a safety effect on the closing movement of the door.
The safety device causes an immediate reversing of the closing movement of the door, but has no effect on the opening movement of the door.
To install several CLOSURE safety devices, connect the N.C. contacts in series.
N.B.: If CLOSURE safety devices are not installed, jumper inputs **7** and **14**.

14 **STOP Safety Command - N.C. Contact**
Any device (safety sensor, photocell, etc.) which, by opening a contact, has a safety effect on the operating cycle. In particular, this safety device interrupts the opening/closing movement of the door.
When the safety device is disengaged, the door resumes its opening/closing movement and continues to the end of the cycle.
To install several STOP safety devices, connect the N.C. contacts in series.
N.B.: If STOP safety devices are not installed, jumper inputs **7** and **13**.

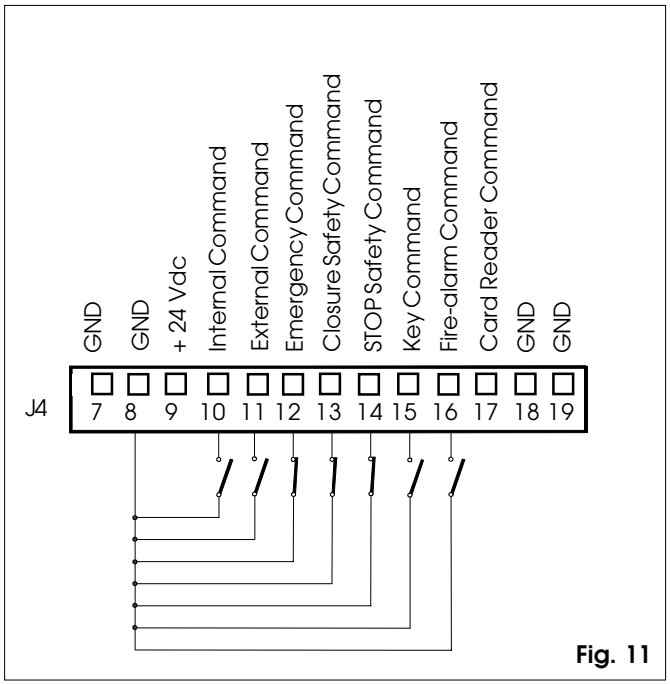

Fig. 11

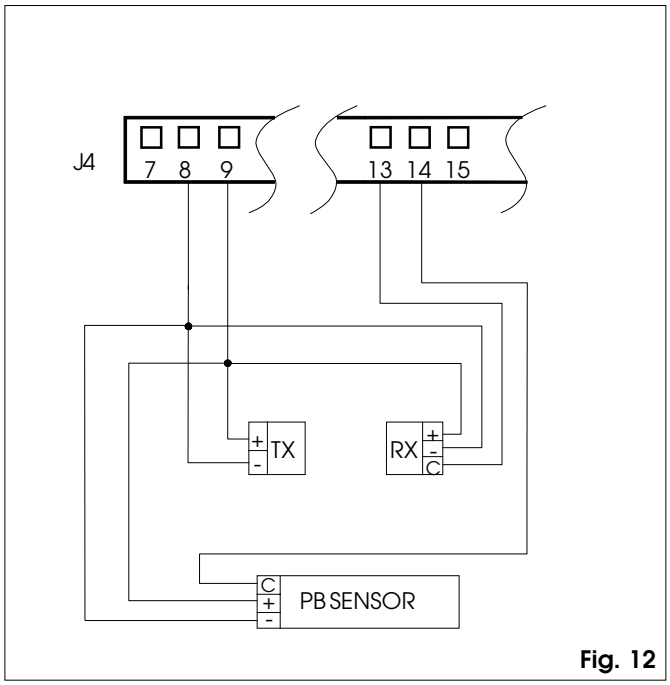

Fig. 12

ENGLISH

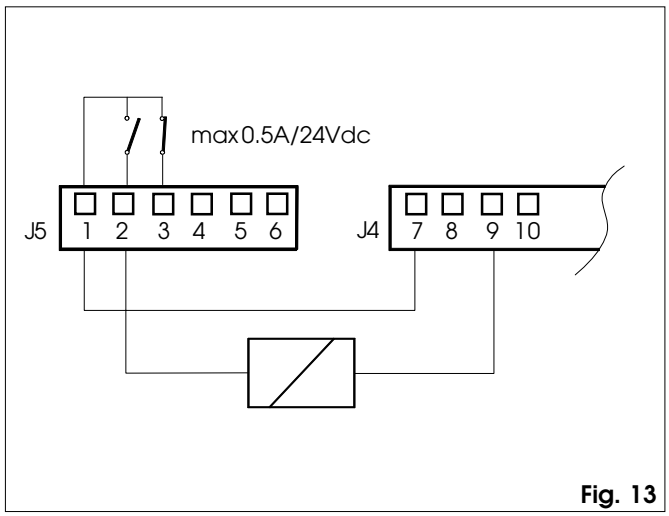

Fig. 13

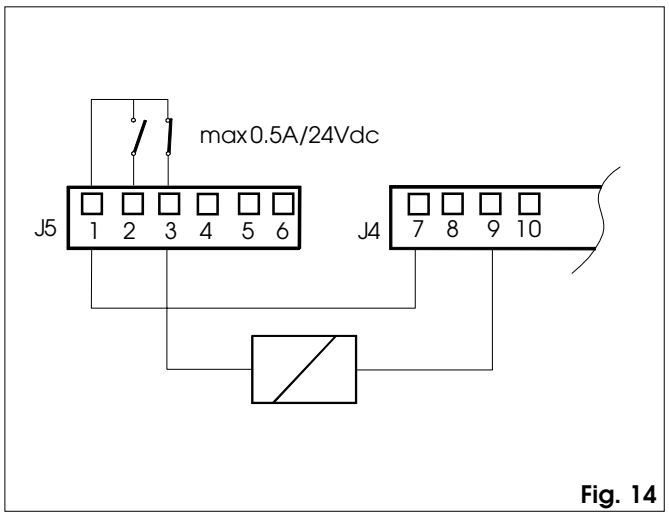

Fig. 14

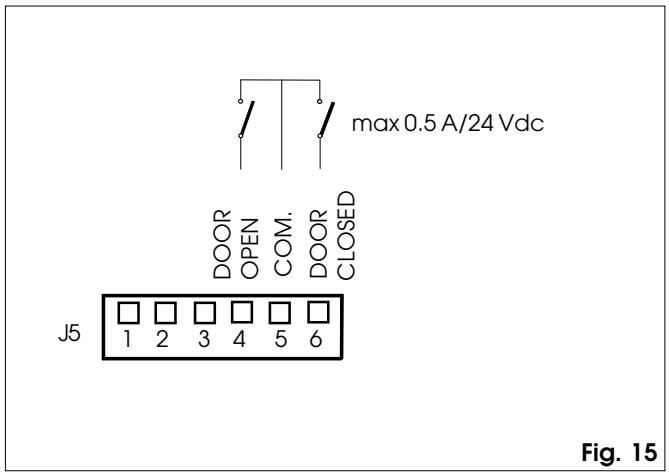

Fig. 15

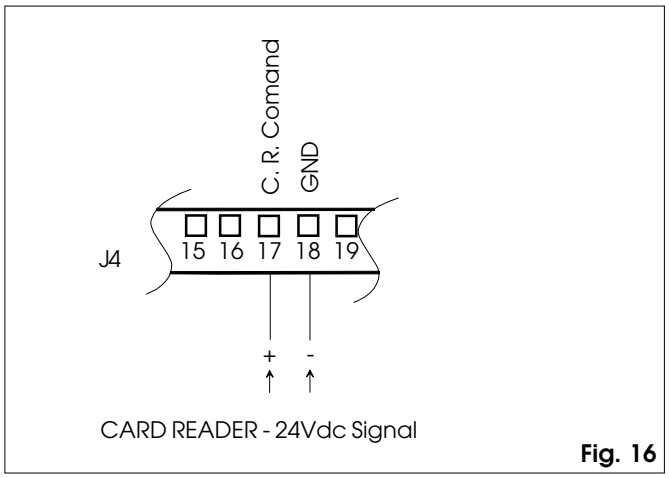

Fig. 16

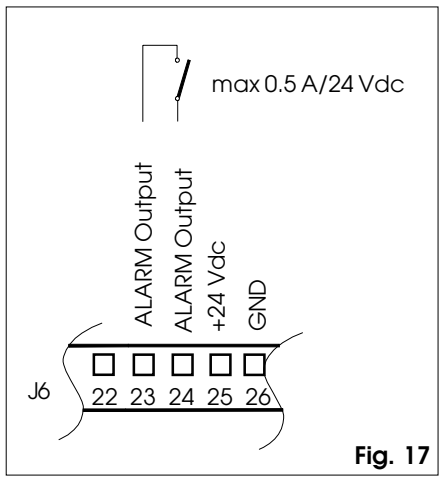

Fig. 17

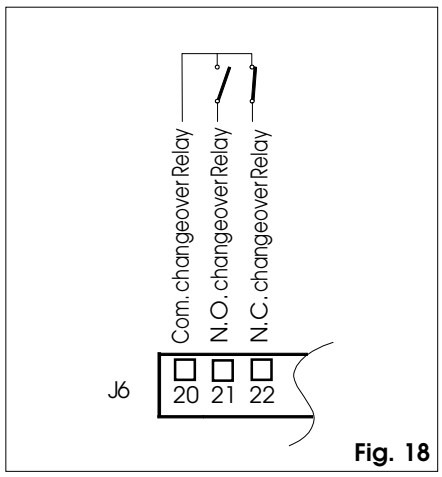

Fig. 18

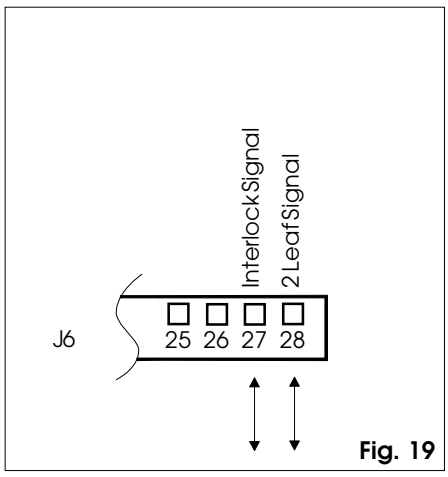

Fig. 19

15 KEY Command - N.O. Contact
Any pulse generator (pushbutton, sensor, etc.) which, by closing a contact, commands door opening.
To install several pulse generators as Internal Command, connect the N.O. contacts in parallel.

16 FIRE-ALARM Command - N.O. Contact
Any device (fire-alarm sensor, etc.) which, by closing a contact, commands door closing.
Permanence of the closed contact, inhibits operation of any other pulse generator.
To install several devices as FIRE-ALARM Command, connect the N.O. contacts in parallel.

17 CARD READER Command - N.O. Contact
Any device (card reader, digital buttonboards, etc.) which, by giving a 24Vdc pulse, commands the door opening and the activation of the changeover relay (terminals 20/21/22, J6 terminal board). The open pause time is fixed at 10 sec.

18 - 19 GND
Accessories power supply Negative and contacts Common

⑥ **J5 TERMINAL BOARD** Connection to relay Outputs (figs. 13,14, 15)

Description of the terminal board

1 Electric lock - Common

2 Electric lock - N.O. Contact (max. capacity 0.5 A/24 V) (fig.13).
If no power is supplied the electric lock is active and therefore guarantees closing mechanical locking.
In the NIGHT function the electric lock is active even if no power is supplied. In the event of an opening command (Key or EMERGENCY command), the electric lock is temporarily powered to enable the door to be opened. In this case a reverse stroke command is also given to enable the mechanical release of the system.

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3 Electric lock - N.C. contact (max. capacity 0.5 A/24 V) (fig.14).
The output is suitable for commanding a magnetic closure system. If no power is supplied, the electric lock is not active. In the NIGHT function the electric lock is powered and hence active. In the event of an opening command (internal command or EMERGENCY OPENING), the power supply to the electric lock is temporarily cut off to allow the door to be opened.

4 Door status CLOSED - N.O. contact (max. capacity 0.5 A/24 V).
When the door CLOSED position is reached, the contact closes.

5 Door status - Common

6 Door status OPEN - N.O. contact (max. capacity 0.5 A/24 V).
When the door OPEN position is reached, the contact closet.

⑦ **J6 terminal board** Relay outputs and special functions (figs. 17, 18, 19)

Description of the terminal board

20 Changeover relay - Common

21 Changeover relay - N.O. Contact
This output is activated (N.C.) by the Card Reader input for 2 sec.
Attention: this output is not suitable for controlling electric locks.

22 Changeover relay - N.C. Contact
This output is activated (N.O.) by the Card Reader input for 2 sec.
Attention: this output is not suitable for controlling electric locks.

23 Alarm Output - Common

24 Alarm Output - N.O. Contact
This output is activated (N.C.) if an alarm is present. At the same time LED2 on the 950 I/O board lights up to indicate the alarm condition.

25 +24Vdc
+24Vdc accessories power supply

26 GND
Accessories power supply Negative and contacts Common

27 "Interlock" output
This terminal is used to enable communication between two 950BM automated systems programmed in "Interlock" configuration, see par. 11.1.

28 "2 Leaves" output
This terminal is used to enable communication between two 950BM automated systems programmed in "2 Leaves" configuration, see par. 11.2.

⑧ **J7 Connector** Quick-fit connector for connecting RP plug-in Receivers or Minidec/Decoder decoding cards (fig. 10).

⑨ **J9 TERMINAL BOARD** NOT-AUS stop terminal board (fig. 10)

Description of the terminal board
N.C. contact for emergency stop. If there is no connection between the two terminals, the automated system is locked and cannot perform any electrical movement.

⑩ **J10 Connector** Quick-fit connector for 40Vdc power supply to 950 MPS board (fig. 10)

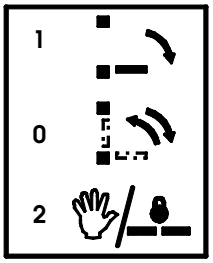
⑪ **J11 Connector** Quick-fit connector for door status signals to 950 MPS (fig. 10)

7. INSTALLING THE CASING

The closure casing is designed so that the styling does not change although the operator can be mounted either on the door or on the lintel. Plug in the function selector switch (fig.4-ref.2) connection cable to the 950 I/O electronic unit, using the quick-fit connector. According to type of installation and to ensure the cable is correctly laid, refer to figures 4a and 4b. Slide the closing plug (fig.4-ref 4) inside the top slot of the casing. Make sure that the screws (fig.4-ref3) are not fully tightened on the fixing brackets of the casing. Position the black plastic doors (fig. 4-ref1) on the seats at the sides of the closure casing. Fit the cover as shownin fig. 4. Tighten the screws (fig.4-ref 3) to secure the cover in its position and close the doors (fig.4 ref. 1). Snap-fit the closing plug on the bottom slot of the cover (fig.4-ref 5).

8. FUNCTION SELECTOR SWITCH

The 950 BM operator has a 3-position function selector switch (0-1-2) mounted on one side of the cover (fig. 4 - ref. 2). The selector switch position is fixed: however, depending on the type of installation (on doorpost or on lintel), the connection cable to the 950I/O unit must be positioned as shown in figs. 4a/b. The selector switch can be easily inspected by opening the protection door (fig. 4 - ref.1).
The selectable operating functions are shown in fig. 20.



POSITION "1": OPEN
When this function is selected, the door opens and remains open.
POSITION "0": AUTOMATIC
If this function is selected, when an internal/external command is given, the door opens and then re-closes after the pause time.
POSITION "2": MANUAL/NIGHT
The position "2" can be used to select two different operating functions according to the programming carried out on the 950 MPS programming unit (see paragraph 5.4.3). The two functions are:
MANUAL: The door can be opened manually.
NIGHT: The external command is inactive. The door can be opened solely by activating the Key command (fig. 11) .

Fig. 20

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9. ADJUSTING THE SPRING

9.1. SPRING PRELOADING

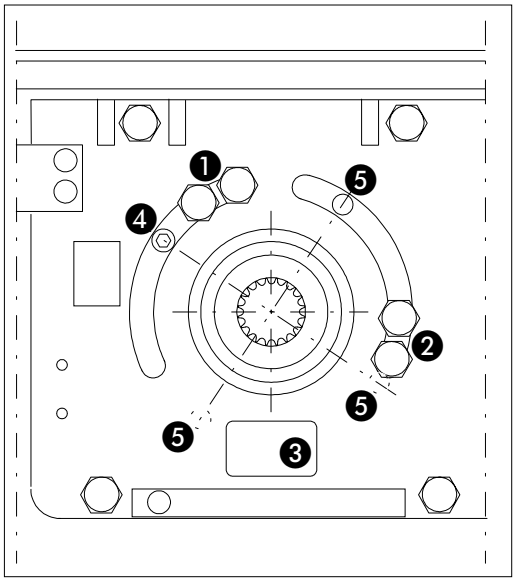
If door movement is not uniform (e.g.: door not closing completely or closing with too much force) proceed as follows to adjust the spring preloading:

1) Cut power to the automated system and release from the door the arm secured directly on the transmission shaft;
2) Rotate the arm until the stop-point screw (fig. 21 ref.4) is in line with the inspection slot (fig. 21 ref. 3) ;
3) Remove the screw, while keeping the arm in position;
4) To increase preloading: rotate the arm in opening direction until the next fixing position of the stop-point screw (fig.21 ref.5) is in line with the inspection slot and fix the screw again.
   To reduce preloading: rotate the arm in closing direction until the next fixing position of the stop-point screw (fig.21 ref.5) is in line with the inspection slot and fix the screw again.
5) Reinstall the arm correctly (see par.3.3.);
6) Run a new SETUP cycle.

9.2. CHECKING SPRING EFFICIENCY

We advise you to periodically check the efficiency of the spring - this is the procedure:

1) Select the Manual function;
2) Remove the protective device of the drive system (see fig. 1 ref.6);
1) With the door closed, trace a vertical line on the spring (fig. 22 ref.1);
2) Open the door completely;
3) Check the line you had traced.
   If distortion is not uniform along the whole spring height (fig. 22 ref.2), but is irregular (fig.22 ref.3), lubricate the spring with specific sliding grease.



① Closing limit-switch
② Opening limit-switch
③ Slot for inspection of stop-point screw
④ Stop-point screw
⑤ Fixing positions of stop-point screw

Fig.21

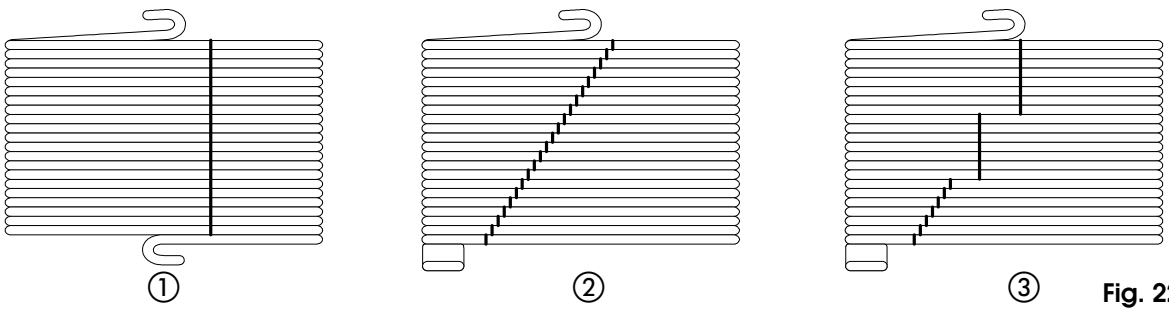


Fig. 22

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10. KP-CONTROLLER PROGRAMMING UNIT

KP-Controller is used for selecting operational functions, as well as adjusting and programming the 950 Series automatic doors. It is divided into two parts: a fixed part used for signalling of operational functions by means of pushbuttons and relevant signalling LEDs (Fig. 23 ref.A), and a removable part with LCD display and selection buttons to access complete programming (Fig. 23 ref.B).
The KP-Controller display can be used as a temporary programming unit if the parameter "Keep settings" in the ADVANCED MENU is set to ON: after all programming and adjustments have been carried out, KP-Controller can be fully removed because the settings remain stored on the 950MPS control board.
If KP-Controller is installed without display, a cover is provided (Fig. 23 ref.C).
KP-Controller can be disabled by a combination of keys (see the special LOCK function) or by internally fitting a jumper by means of a switch (Fig. 24 ref. LOCK).

10.1. MOUNTING

Refer to Fig. 24 for an exploded view of mounting; two knockout areas marked A and B are provided for entry of connection cable.

10.2. CONNECTIONS

Connect KP-Controller to the 950 I/O control board by a 2x0.5mm² max 50m cable (Fig. 24).
If the two LOCK terminals are connected to each other as shown in Fig.24, all keys on the programmer are disabled.

10.3. DIAGNOSTICS

KP-Controller (also without display) has a diagnostic function which, in case of an alarm, interrupts normal display of the function every 2 seconds in order to show the fault status for 1 second by a combination of flashing LEDs.
Consult Fig. 25 and table 8 to identify the type of alarm according to the flashing LEDs
In the event of several simultaneous faults, the code of fault detected first is displayed.

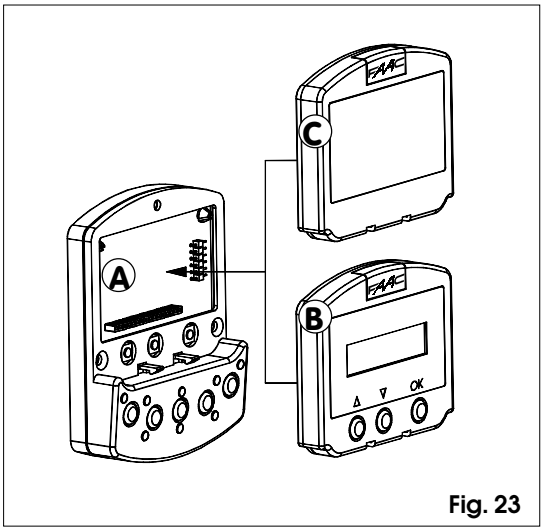

Fig. 23

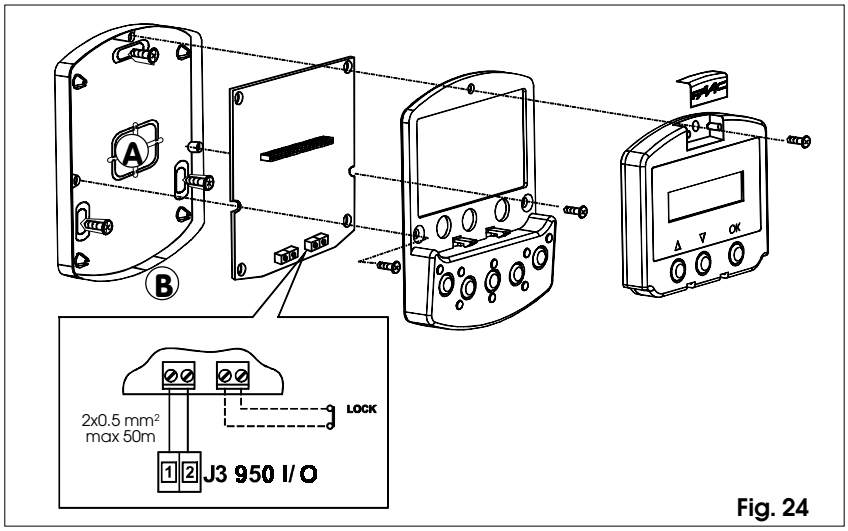

Fig. 24

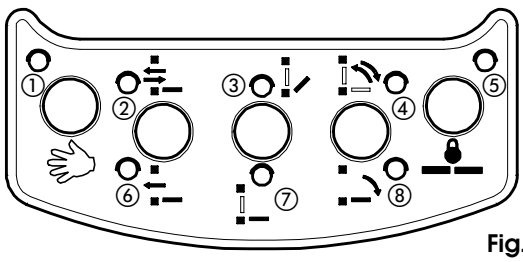

Fig. 25

Table 8 DIAGNOSTICS — Led ● =on ○ = off

DESCRIPTION	MEANING	①	②	③	④	⑤	⑥	⑦	⑧
3 FORCED OPEN	Door forced opening in progress	○	○	●	○	○	○	●	○
7 EMERG. ON	Emergency input active	○	○	●	●	○	○	●	○
9 OBST.IN CLOS.	Closing obstacle detected 3 successive times; Reset necessary to restore operation	○	○	○	○	○	○	●	●
10 ☎	Lock locked in closed position	○	○	●	○	○	○	○	●
12 ☎	Incorrect power supply to accessories (24Vdc absent)	○	○	○	●	○	○	○	●
15 ☎	Setup not possibile	○	○	●	●	○	○	●	●
18 ☎	Initialisation process not possible on motor: leaf stroke too long	○	●	●	○	○	○	○	○
20 ☎	Initialisation process not possible on motor: insufficient leaf stroke	○	●	○	●	○	○	○	○
22 ☎	Leaf too heavy	○	●	●	●	○	○	○	○
24 ☎	Motor failure	○	●	○	○	○	○	○	●
26 ☎	950 MPS control board failure	○	●	●	○	○	○	○	●
27 ☎	No power supply	○	●	●	○	○	○	●	●
28 ☎	Setup cycle required	○	●	○	●	○	○	○	●
29 ☎	Encoder failure	○	○	●	○	○	○	●	●
30 ☎	Driver motor failure	○	●	●	●	○	○	○	●
31 ☎	EEPROM failure	○	●	●	●	○	○	●	●
32 ☎	Master/Slave communication error	○	○	○	○	○	●	○	○

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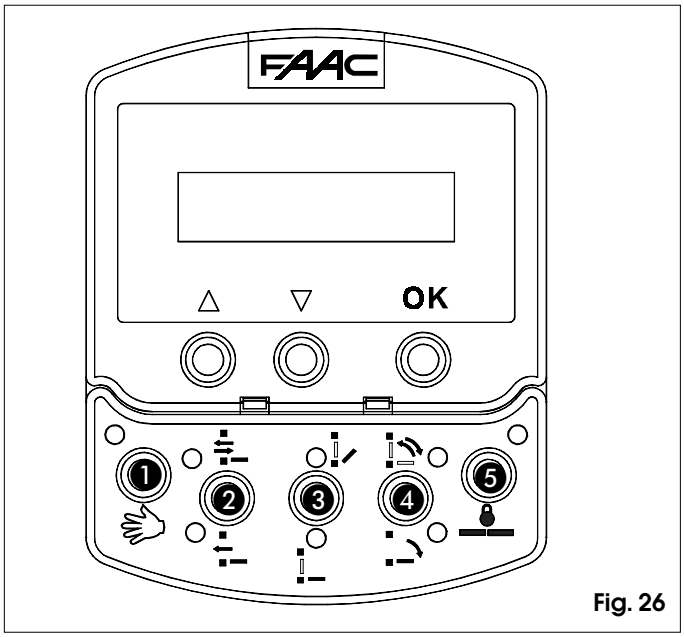

Fig. 26

10.4 . OPERATIONAL FUNCTIONS

Selection is performed by pressing the keys on the fixed part of the programmer - the function is indicated by the corresponding LED lighting up.
Note: when the "Night" or "Manual" modes have been set, the relevant selection keys must be pressed to exit the modes.

MANUAL
The door is free and can be activated manually.

BI-DIRECTIONAL
Pedestrian transit is possible in both directions; the inside and outside radars are enabled.

ONE-WAY
Pedestrian transit is possible in one direction only; the external radar is disabled.

PARTIAL OPENING
The door opens only partially (standard: 80%)
Partial opening can be adjusted in range from 60% to 90% of total.

TOTAL OPENING
The door opens completely.

AUTOMATIC
The door opens (partially or totally) and then re-closes after the set pause time (standard: 2 sec.).
Pause time adjustment: form 0 to 30 sec.

DOOR OPEN
The door opens and stays open.

NIGHT
The door closes and the lock (if present) is activated. The internal and external radars are disabled.
The Key command causes opening and closing after the night pause time elapses (standard: 7 sec).
Adjusting range of night pause time: from 0 to 30 sec.
To obtain partial opening in this mode, before selecting the "Night" function, activate the "Partial Opening" function.

❶		MANUAL
❷		BI-DIRECTIONAL
		ONE-WAY
❸		PARTIAL OPENING
		TOTAL OPENING
❹		AUTOMATIC
		DOOR OPEN
❺		NIGHT

10.5 . SPECIAL FUNCTIONS

SETUP
Setup is the door initialisation function during which parameters are self-learned.
To activate, simultaneously press keys ❶ and E for ❺ sec.

RESET
Reset is the function for restoring normal operating conditions after some types of alarm have been signalled.
To activate, simultaneously press keys ❷ and ❸.

LOCK
When active, the Lock function disables KP-Controller.
To activate and de-activate, simultaneously press keys ❸ and ❹ for 5 sec.

10.6 . INSERTING AND CHANGING BATTERY

To keep the clock inside KP-Controller active even in the event of a power cut, a 3V model CR1216 lithium battery has to be installed.
To insert or change the battery, find the compartment on the printed circuit (Fig. 27) and observe the indicated polarity.

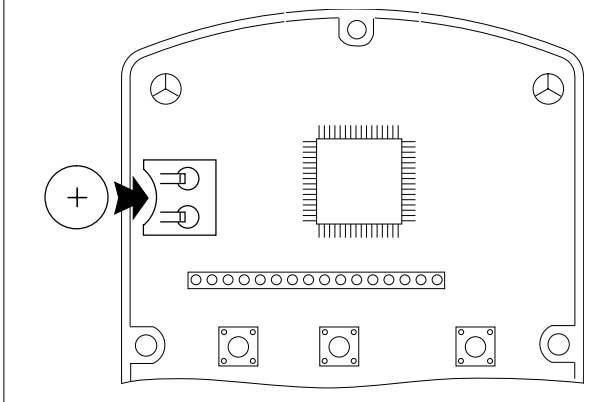

Fig. 27

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10.7. PROGRAMMING

To access programming while the standard view is shown on the display, press any of keys Δ, ∇ or OK.
Programming is subdivided into main menus (see Chart 1) split into subjects.
After selecting the menu with keys Δ or ∇, to access it press OK.
Each menu is, in turn, subdivided into sub-menus at different parameter setting levels.
Use keys Δ or ∇ to select (sub-menu or parameter) and confirm with the OK key.
An asterisk on the display indicates the currently active setting.
To exit programming, select the "exit" function at each level.
Otherwise, after about 2 minutes, the display automatically returns to standard view.
The following flow-charts and notes show the various programming menus and options.

Diagram 1: Programming

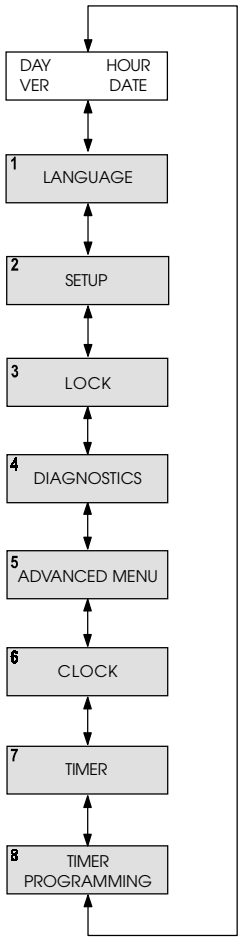

Diagram 2: Language selection

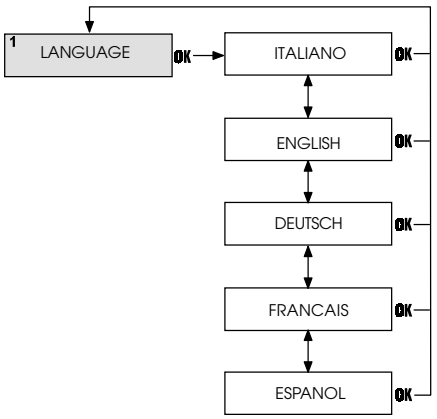

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Diagram 3: Setup

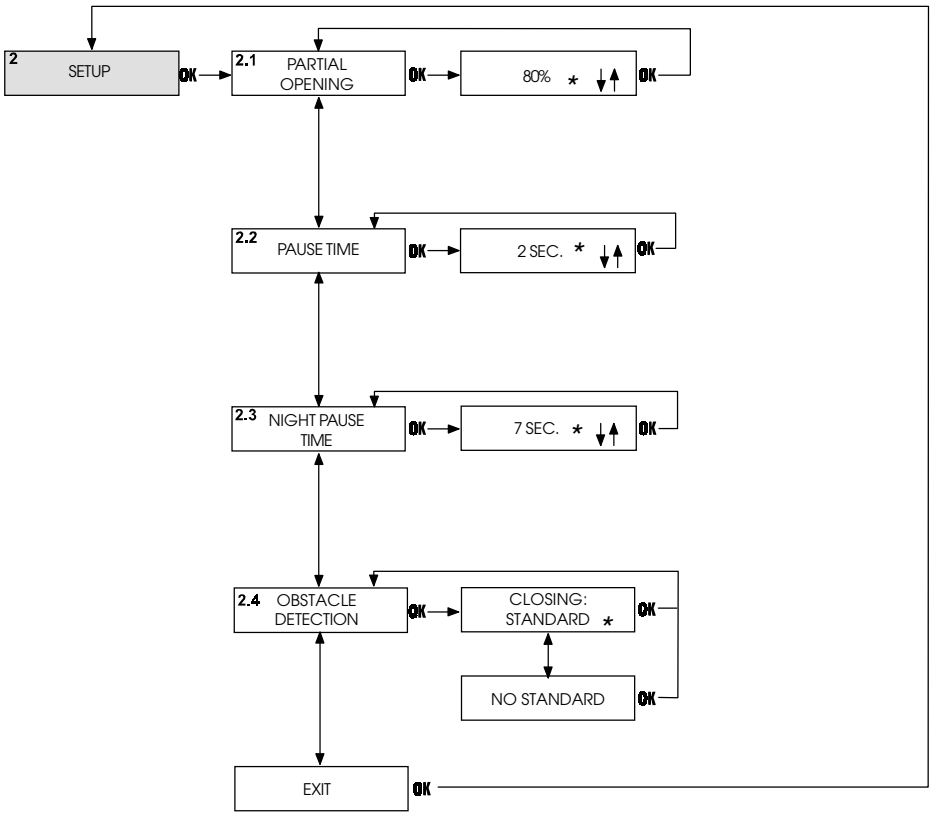

Diagram 4: Lock

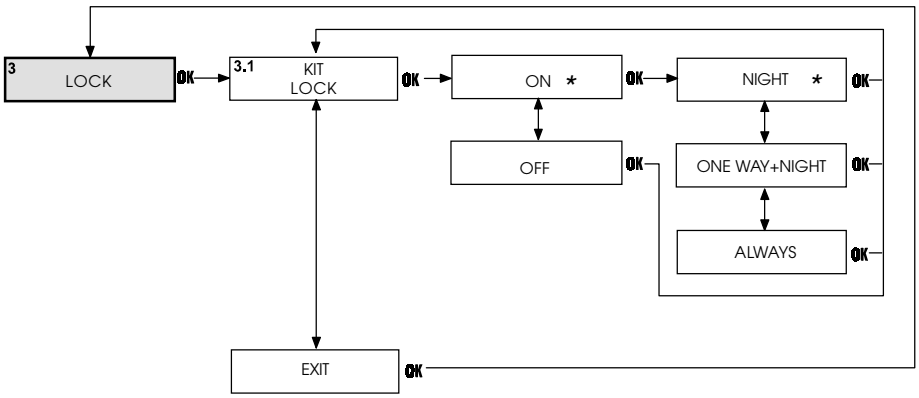

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Diagram 5: Diagnostics

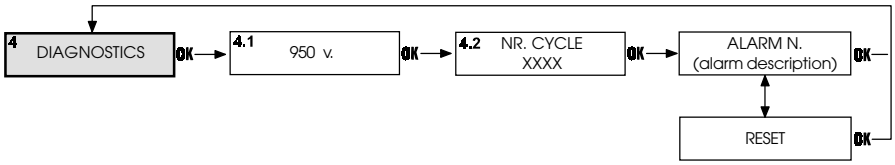

Diagram 6: Operation parameters

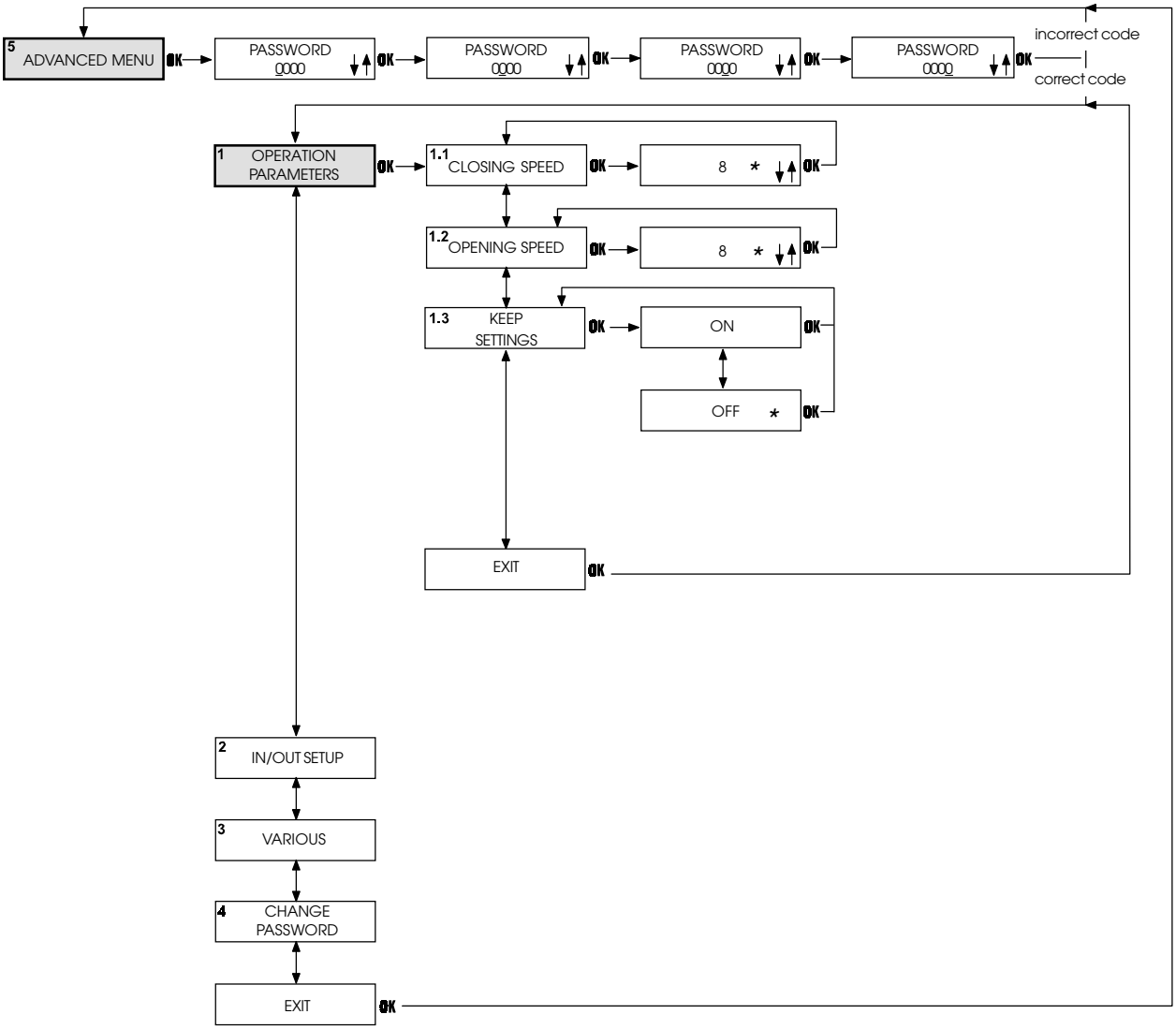

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Diagram 7: In/Out Setup

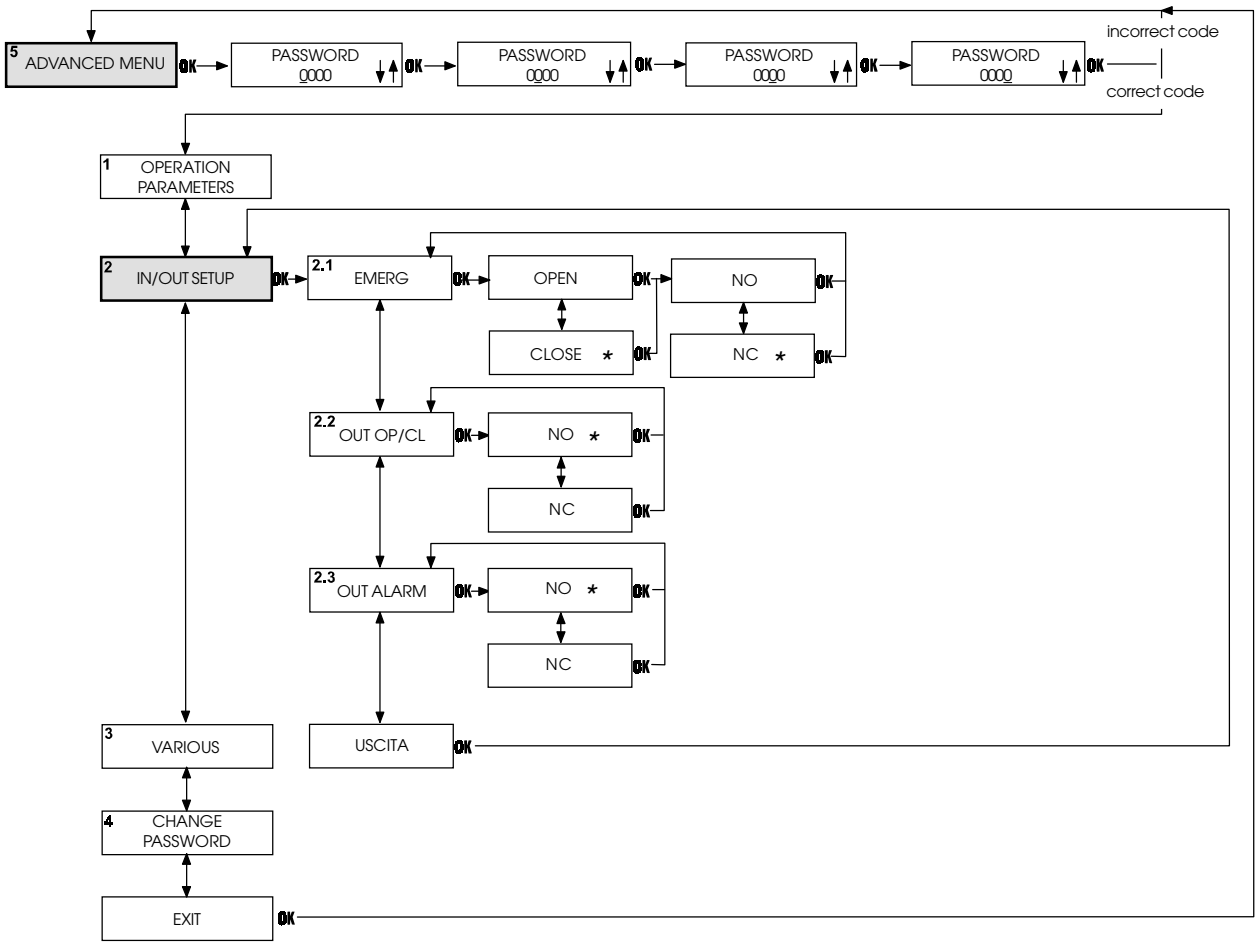

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Diagram 8: Various - Change passwod - Test prog

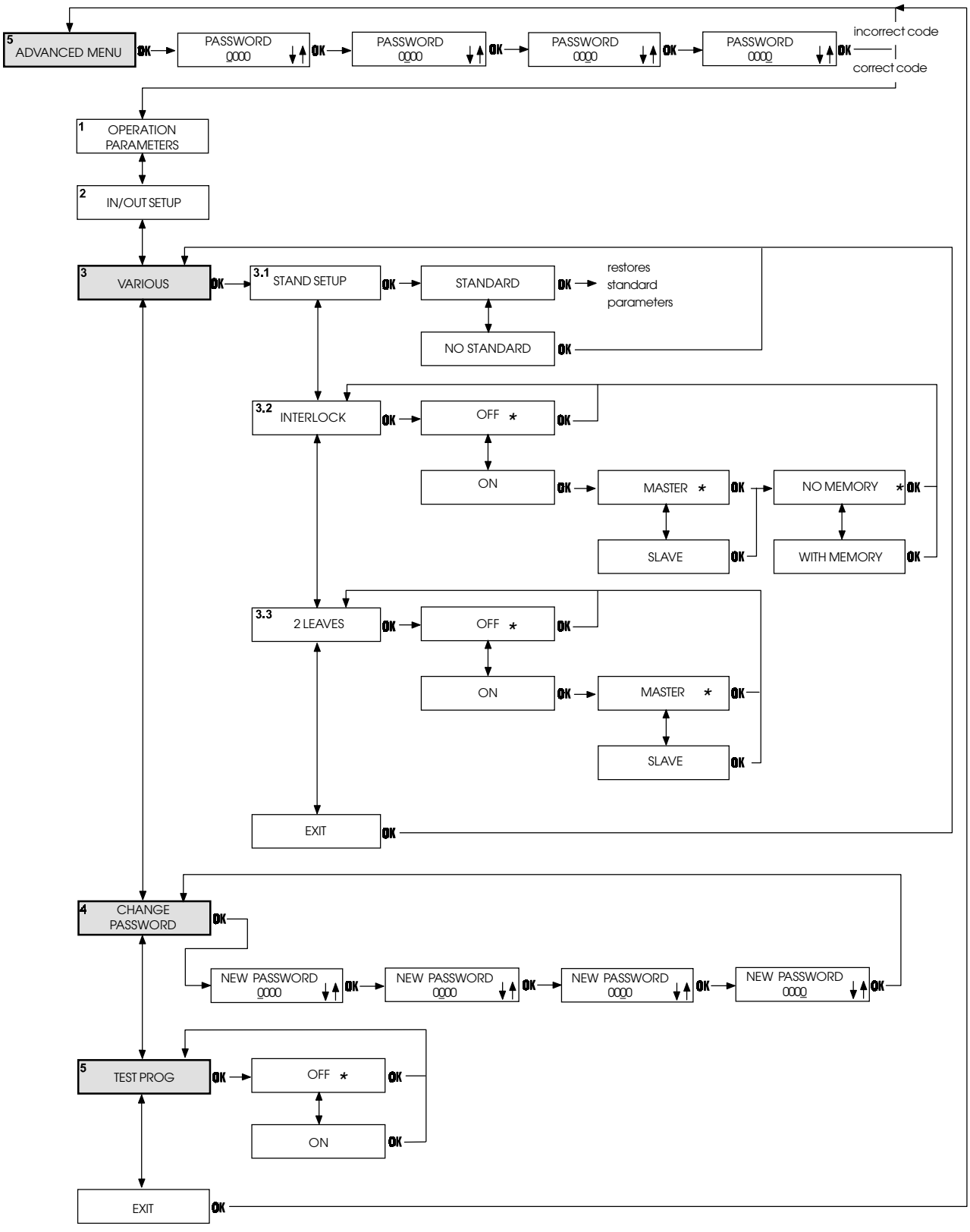

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Diagramma 9: Clock

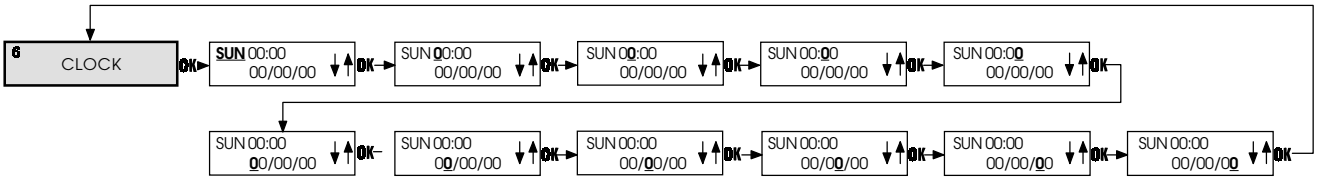


Diagram 10: Timer

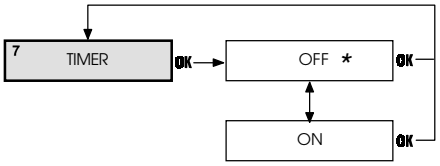
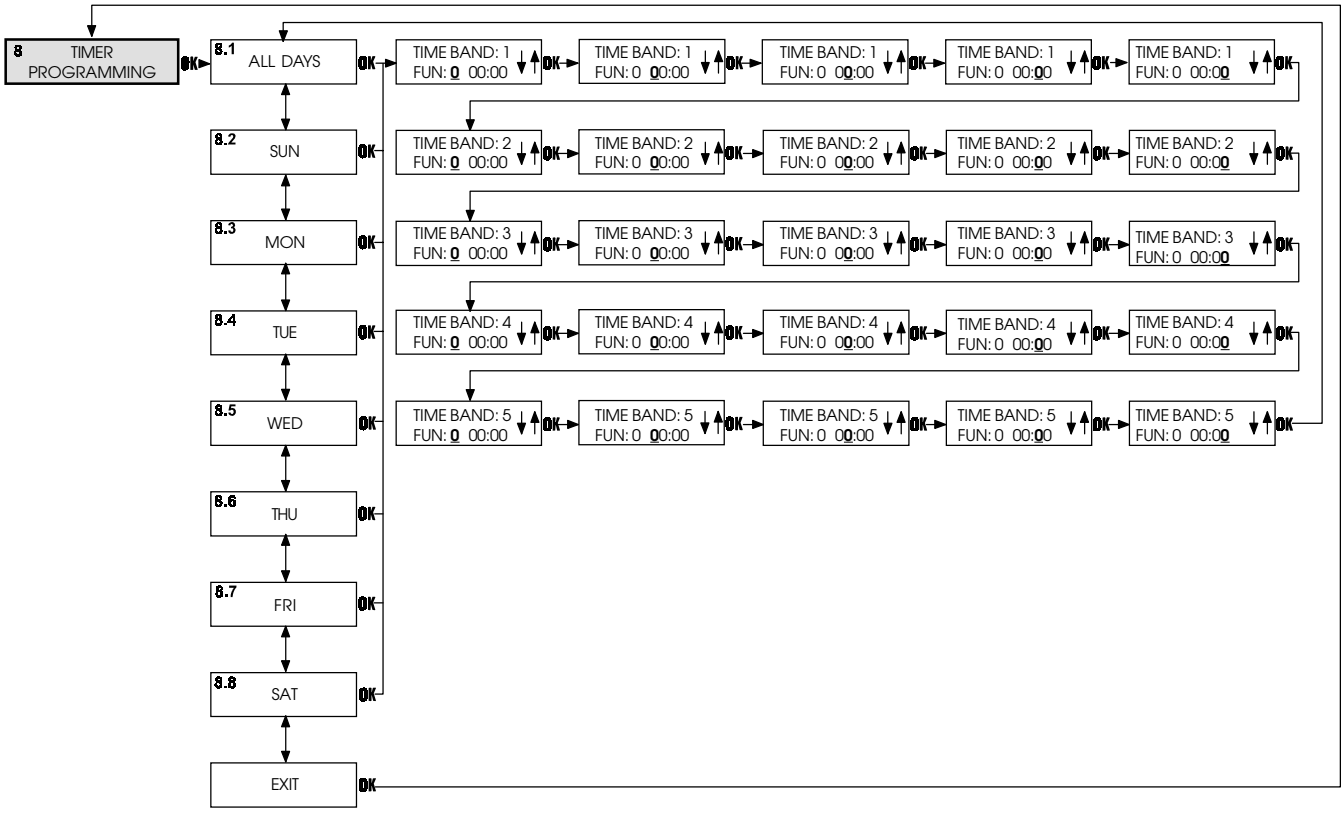


Diagram 11: Timer programming



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1 LANGUAGE (Diagram 2)

Select the language for showing the messages on the display

2 SETUP (Diagram 3)

2.1 PARTIAL OPENING

Partial opening percentage

Select the opening percentage (referred to total opening) performed in the "Partial Opening" operational function.
Standard value: 80%
Adjusting range: from 60% to 100%

2.2 PAUSE TIME

Pause time value

Set pause time in the automatic operational function
Standard value: 2 sec.
Adjusting range: from 0 to 30 sec.

2.3 NIGHT PAUSE TIME

Night pause time value

Set pause time in the "night" operational function
Standard value: 7 sec.
Adjusting range: from 0 to 30 sec.

2.4 OBSTACLE DETECTION

Determines the behaviour of the automated system in the event of repeated obstacle detection during the same manoeuvre.

Standard

The automated system tries to complete the manoeuvre.

Non Standard

If an obstacle is detected for 3 consecutive times, the automated system stops. After removing the obstacle, the door has to be closed manually to restore normal operation

3 LOCK (Diagram 4)

3.1 KIT LOCK

On

Lock installed.

Night

The lock locks the door only in the "Night" operational function.

One-way+Night

The lock locks the door in the "Night" and "one-way" operational functions.

Always

The lock locks the door whenever this closes, irrespective of the set operational function.

Off

Lock not installed.

4 DIAGNOSTICS (Diagram 5)

4.1 950

The door's hardware model and the software of the 950 MPS and 950 I/O control boards to which KP-Controller is connected are shown.

4.2 CYCLES No.

The count (non resettable) of the cycles effected by the automated system is shown

4.3 ALARM No.

The number and description of the current alarm are shown. Refer to table 1 for error codes and descriptions.

RESET

Executes reset procedure and, if the cause of signalled malfunction was removed, it restores normal operation.

5 ADVANCED MENU

PASSWORD

To access the advanced menu, insert the 4-digit password (default 0000).

1 OPERATION PARAMETERS (Diagram 6)

1.1 CLOSING SPEED

Sets door speed for closing.
Standard value: level 8
Adjusting range: from 0 to 10

1.2 OPENING SPEED

Sets door speed for opening.
Standard value: level 8
Adjusting range: from 0 to 10

1.3 KEEP SETTINGS

On

The automated system maintains the operating parameters set with KP-Controller even if this is disconnected.

Off

If the KP-Controller is disconnected, the settings of opening and closing speeds and pause time must be made using the trimmers (see Par. 5.2)

2 IN/OUT SETUP (Diagram 7)

2.1 EMERG

Sets the effect of the emergency command (Emerg input on 950 I/O control board).
Standard setting: Opens/NC

Open

Activating this command opens the door.

Close

Activating this command closes the door.

NO

Normally open input.

NC

Normally closed input.

2.2 OUT OP/CL

Sets operation of **Open** and **Closed** status outputs of 950 I/O control board
Standard setting: NO

NC

Normally closed input.

NO

Normally open input.

2.3 OUT ALARM

Sets operation of **Alarm** status outputs of 950 I/O control board
Standard setting: NO

NO

Normally open input.

NC

Normally closed input.

3 VARIOUS (Diagram 8)

3.1 STANDARD SETUP

Used for checking if any non-standard programming operation was effected.

Standard

If no function was modified with respect to the standard programming, an asterisk is shown.
If the asterisk is not present, press the "OK" key and all standard programming functions are reset.

Non Standard

If at least one function was modified with respect to the standard programming, an asterisk is shown.

3.2 INTERLOCK

The interlock function makes it possible to control two doors (master and slave) so that opening of one depends on closing of the other and vice versa.

Off

Interlock function not active.

On

Activates the interlock function.

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Master
The master door (usually the internal one).
Slave
The slave door.
No Memory
With interlock operation, you must wait for one door to close before commanding the other to open: any opening pulses sent during the operating cycle of the first door, have not effect.
With Memory
With interlock operation, there is not need to wait for one door to close before commanding the other to open: any opening pulses sent during the operating cycle of the first door are memorised, and the second door opens automatically as soon as the first door closes.

3.3 2 LEAVES
The "2 LEAVES" function is used to control 2-leaf doors. The two automated systems (master and slave) synchronously control door movement. The Master function must be associated with the door which begins the opening movement first.
Off
"2 LEAVES" function not active.
On
Activates the "2 LEAVES" function.
Master
The master door (if the leaves have an overlap, it is always the first to start the opening movement).
Slave
The slave door.

4 CHANGE PASSWORD
Sets the new password for accessing (4 digits) the advanced menu. Default 0000.

5 TEST PROG.
Runs an operational test of the automated system. If a malfunction is detected, the system stops and the KP-Controller signals the detected malfunction status.
Off
Test function not active.
On
Activates the test function.

6 CLOCK (Diagram 9)
Sets the current day, time and date.

7 TIMER (Diagram10)
Off
Timer not activated.
On
Timer activated: the operating time bands set in "8 Timer Programming" are enabled.
When the timer is activated, a "T" appears at the side of the time shown on the display and the KP-Controller will not allow any operational selection.
The battery inside the KP-Controller maintains the clock in operation even if power is not supplied; if correct time is lost (e.g. black-out and discharged battery), a flashing asterisk appears in place of the "T", the timer is disabled and the system automatically commutates into the NIGHT function.

8 TIMER PROGRAMMING (Diagram 11)
With the timer, you can create up to 5 different time bands for each day of the week (by setting the band starting time) and assign an operational function to each time band.
When the KP-Controller's internal clock reaches the starting time of a band, the associated operating function is automatically set, and the door remains in this condition until the subsequent band intervenes.
Permanent connection of the KP-Controller+Display is necessary for correct management of time bands.
Selecting the day
Selects the day of the week to create time bands.
If you select "All days", any time bands defined subsequently are included in all days of the week.
Function
Sets the operating function to be associated with the time band by referring to the following table:

FUN	MEANING
0	NO FUNCTION
1	AUTOMATIC BI-DIRECTIONAL TOTAL
2	AUTOMATIC ONE WAY TOTAL
3	AUTOMATIC BI-DIRECTIONAL PARTIAL
4	AUTOMATIC ONE WAY PARTIAL
5	DOOR TOTALLY OPEN
6	DOOR PARTIALLY OPEN
7	MANUAL
8	NIGHT

Time band starting time
Sets the activation time for the time band.
There is no need for the time bands to be in chronological order.

-Programming example -

We wish to program a door operating at the following times:
- from MONDAY to FRIDAY:
  - from 8 a.m. in AUTOMATIC BI-DIRECTIONAL TOTAL
  - from 6 p.m. in AUTOMATIC ONE WAY TOTAL
  - from 7 p.m. in NIGHT
- SATURDAY and SUNDAY: NIGHT for the whole day

Proceed as follows:

select ALL DAYS and set the following:
TIME BAND 1 : FUN 1 08:00
TIME BAND 2 : FUN 2 06:00 p.m.
TIME BAND 3 : FUN 8 07:00 p.m.
TIME BAND 4 : FUN 0
TIME BAND 5 : FUN 0

Select SATURDAY and set the following:
TIME BAND 1 : FUN 0
TIME BAND 2 : FUN 0
TIME BAND 3 : FUN 0
TIME BAND 4 : FUN 0
TIME BAND 5 : FUN 0

Select SUNDAY and set the following:
TIME BAND 1 : FUN 0
TIME BAND 2 : FUN 0
TIME BAND 3 : FUN 0
TIME BAND 4 : FUN 0
TIME BAND 5 : FUN 0

Note: for correct use of the TIMER function, the battery of the KP-Controller must be efficient. In case of a power cut, the battery keeps the clock in operation. If the battery is discharged, the clock resets and, when power is restored, the KP-Controller automatically switches to NIGHT.
For automated systems which are not powered for long periods (e.g. 12 hours out of 24 for 365 days a year), we advise you to replace the battery not later than every 3 years.

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11. SPECIAL APPLICATIONS

11.1. INTERLOCK

The interlock function makes it possible to control two doors (master and slave) so that opening of one depends on closing of the other and vice versa.

11.1.1. INTERLOCK WITH INTERNAL SENSORS

This application is recommended when the distance between the two doors is sufficient to avoid interference in the detection ranges of the two internal sensors.

• Make the connections between the 950I/O control units of the two automated systems and the sensors as shown in figure 28.

• Program the following functions (see advanced progr.):

-"interlock" active on both doors,

-select the "MASTER" option for the internal door, and the "SLAVE" option for the external one,

-select, for both doors, option "interlock without memory" or "interlock with memory".

Important:

• The sensors must be connected only to the Key input of the control units;

• The interlock will operate only if both doors are set to the NIGHT or ONE-WAY operating function.

Operation

These are the interlock operational stages:

1) The person on the outside activates sensor S1 of door A;
2) Door A opens;
3) The person enters the internal space between the two doors;
4) Door A closes after the night pause time elapses;
5) The person activates sensor S3 of door B (If the "Interlock with memory" option was selected, there is no need to wait for the first door to close totally in order to activate the sensor of the second door);
6) Door B opens;
7) The person exits;
8) Door B closes after the night pause time elapses.

The operation is identical if the person comes from the opposite direction.

11.1.2. INTERLOCK WITHOUT INTERNAL SENSORS

This application is recommended if the doors are so near to one another that the two internal sensors cannot be used; two pushbuttons have to be installed for activating the doors from the outside; no presence sensors are used.

• Make the connections between the 950I/O control units of the two automated systems, of the pushbuttons and additional electronic components as shown in figure 29.

• Program the following functions (see advanced progr.):

-"interlock" active on both doors,

-select the "MASTER" option for the internal door, and the "SLAVE" option for the external one,

-select the "interlock with memory" option for both doors.

Important:

• The pushbuttons must be connected only to the Key input of the control units;

• The interlock will operate only if both doors are set to the NIGHT or ONE-WAY operating function.

Operation

These are the interlock operational stages:

1) The person on the outside activates pushbutton B1 of door A;
2) Door A opens;
3) The person enters the internal space between the two doors;
4) Door A closes after the night pause time elapses;
5) Door B opens automatically;
7) The person exits;
8) Door B closes after the night pause time elapses.

The operation is identical if the person comes from the opposite direction.

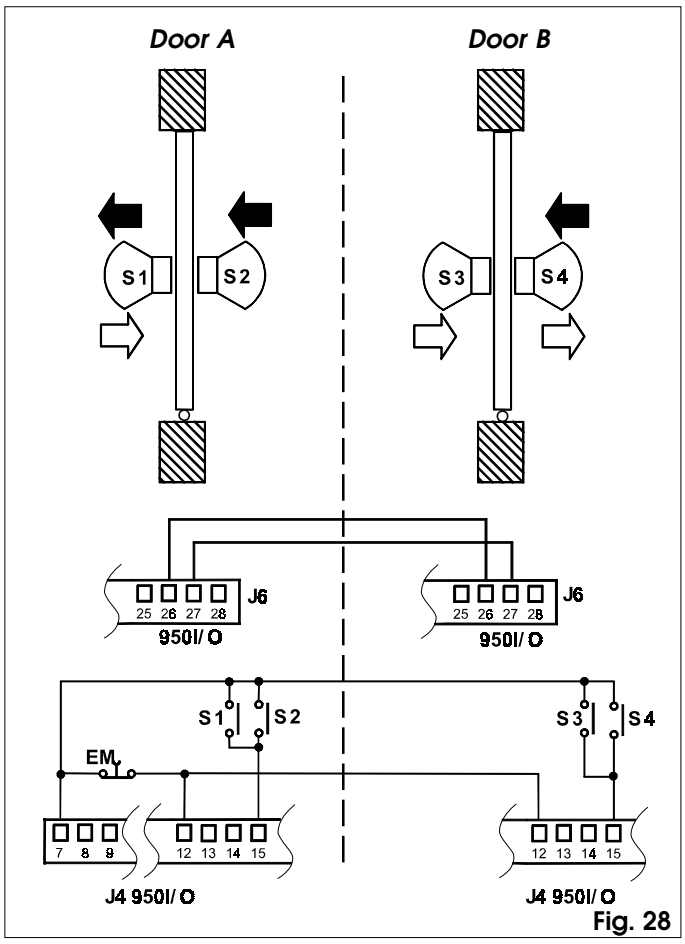

Fig. 28

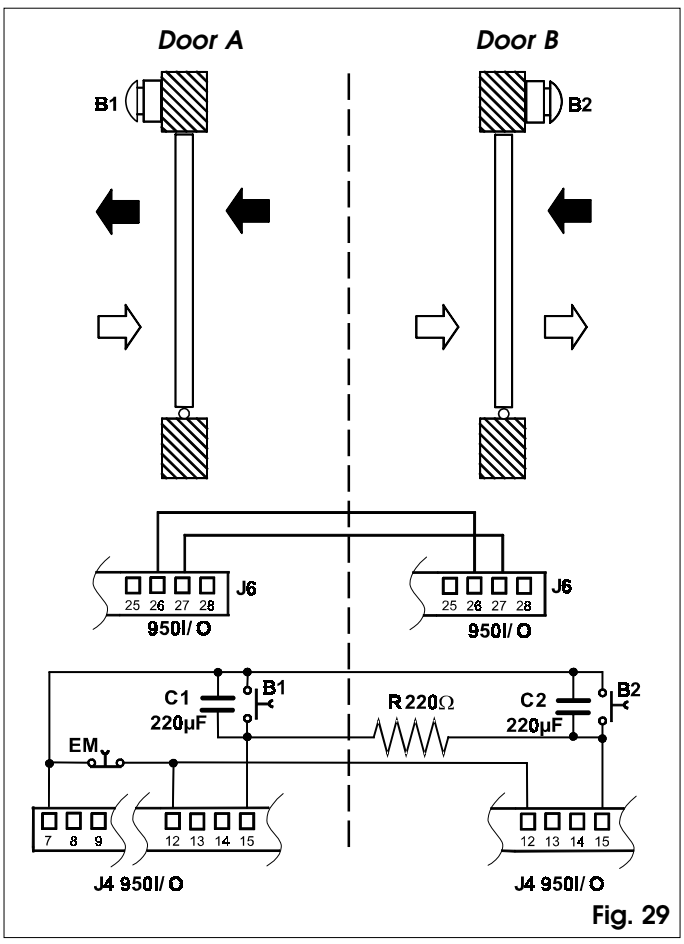

Fig. 29

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11.2. 2 LEAVES

The "2 LEAVES" function makes it possible to manage two opposing doors with a synchronised movement and preset delay angles (these cannot be modified).
The leaf controlled by the master automated system (see fig. 30) is the first to start the opening movement and, when it has reached the opening angle preset for leaf delay, the slave leaf begins its movement too.
Likewise, when closing, the master begins to move only when the slave has reached the closing angle preset for leaf delay.
If one of the automated systems detects an obstacle, the movement of both leaves is immediately reversed.
The partial opening function enables control of total opening of the master only.
The operating functions must be set on the master automated system only (or on the KP-Controller if connected).

- Make the connections between the 950I/O control unit of the two automated systems as shown in fig. 31.
- Connect all sensors and pulse generators to the master only.
- Program the following functions (see advanced programming):
  - "2 LEAVES" active on both doors;
  - Select the "MASTER" option for the door due to begin the opening movement first, and select "SLAVE" for the other door.
  - Set the same motion parameters on the two automated systems;
  - If you wish to disconnect the KP-Controller from the slave door, you have to set function "KEEP SETTINGS" to ON;

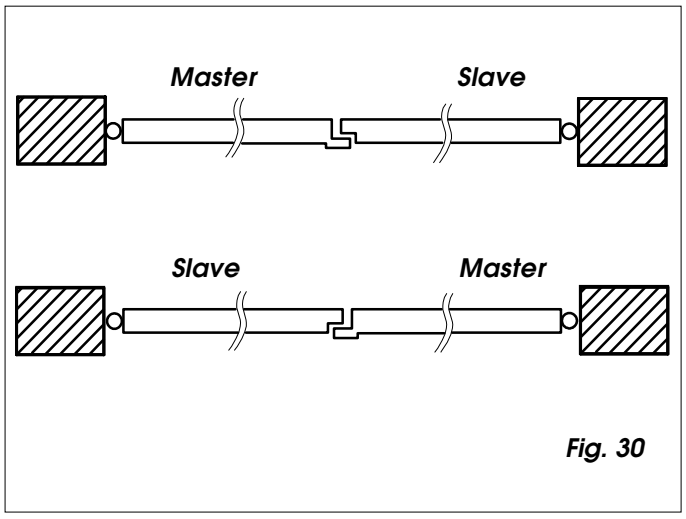


Fig. 30

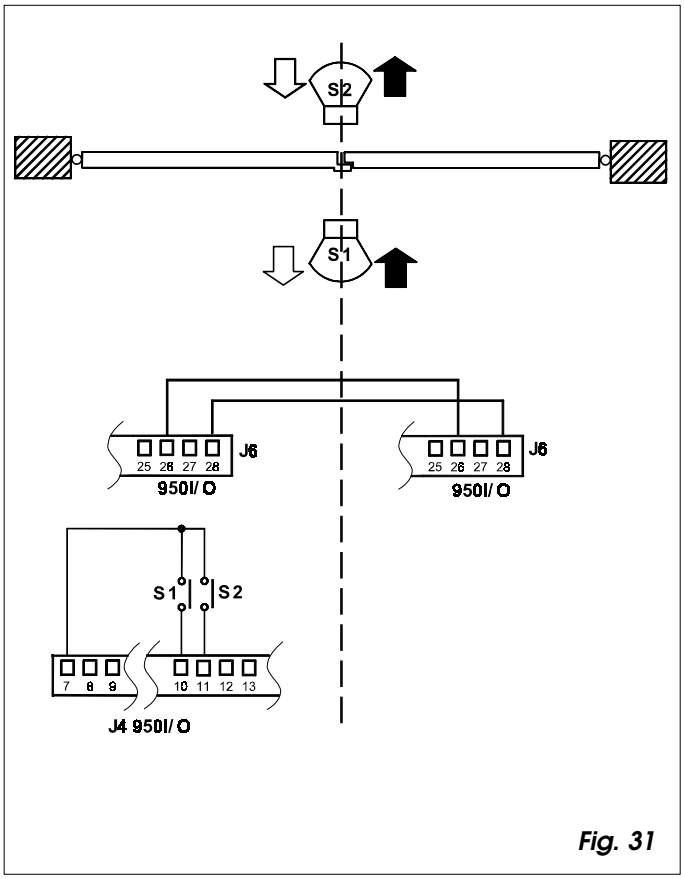


Fig. 31

ENGLISH

950 BM AUTOMATION SYSTEM End-user guide

Read the end user guide carefully before using the product and keep it in a safe place for future reference.

GENERAL SAFETY REGULATIONS

When correctly installed and used, the 950 BM automatic unit assures a high level of safety. A few simple rules should be followed to prevent problems from arising accidentally:

- Do not stand or allow children or adults to stand within range of the door, especially during operation, and do not leave objects near it.
- Do not allow children to play with the door.
- Do not deliberately obstruct movement of the door.
- Keep the "automatic door" signs efficient and clearly visible.
- In the event of a malfunction, select MANUAL OPERATION and wait for a qualified technician to perform the necessary repair work.
- Do not modify the components of the automatic unit.
- Do not attempt to repair the automatic unit or to perform any operation on it. Call qualified FAAC technicians only.
- At least once every 6 months have qualified personnel check that the automatic unit, safety devices and earth connection are in working order.

DESCRIPTION

The 950 BM automatic unit for swing doors is a one-piece unit consisting of an electromechanical device that allows door opening to be controlled by means of a driving arm. The door is re-closed by a spring system.
The operator can be installed either on the lintel or on the door structure itself.
The stainless steel protective casing houses the electronic control unit used to program and control the operation of the system.
The automatic unit 950 BM has a selector which can be used to choose the operating logic shown in fig. 1. A "KP-Controller" programming unit (fig. 2) can be installed as an alternative to the function selector, in which case the operating functions in Tab.1 are available:

OPERATING FUNCTIONS

Selection is performed by pressing the keys on the fixed part of the programmer - the function is indicated by the corresponding LED lighting up.
Note: when the "Night" or "Manual" modes have been set, the relevant selection keys must be pressed to exit the modes.

❶		**MANUAL**
❷		**BIDIRECTIONAL**
		MONODIRECTIONAL
❸		**PARTIAL OPENING**
		TOTAL OPENING
❹		**AUTOMATIC**
		DOOR OPEN
❺		**NIGHT**

Tab.1

MANUAL OPERATION

If the door has to be activated manually due to failure of the electrical power supply or a malfunction of the automatic unit, proceed as follows:

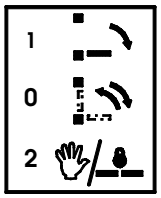
Function selector
- Turn the selector to the "2" MANUAL/NIGHT position (fig.1).
- Open or close the door manually.

KP-Controller unit
- Press the button (❶) to set the operating function to the manual (fig.2-Tab.1) the relavant LED lit steadily.

RETURN TO NORMAL OPERATION

Function selector
- Turn the function selector to the "0" AUTOMATIC position (fig.1).

KP-Cpontroller unit
- Press again the Manual selection button (❶) to exit the relevant operating function and select the new operating mode (Tab.1) using the relevant buttons (Fig.2). The function is shown by steadily lit LED's.



POSITION "1": OPEN
When this function is selected, the door opens and remains open.The door closure can be controlled only activating the Emergency command.
POSITION "0": AUTOMATIC
If this function is selected, when an internal/ external or Key command is given, the door opens and then re-closes after the pause time.
POSITION "2": MANUAL/NIGHT
The position "2" can be used to select two different operating functions according to the programming carried out on the 950 MPS programming unit . The two functions are:
MANUAL: The door can be opened manually.
NIGHT: The external command is inactive. The door can be opened solely by activating the Key command .

Fig. 1

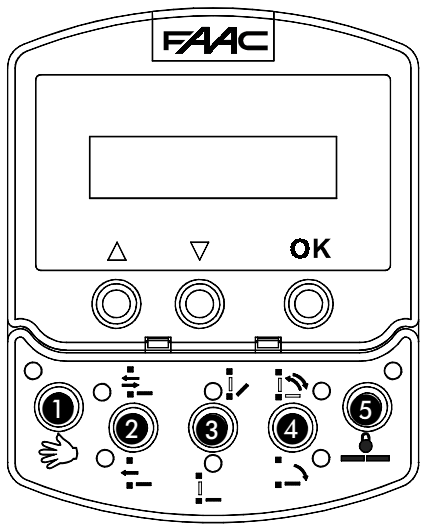


Fig. 2

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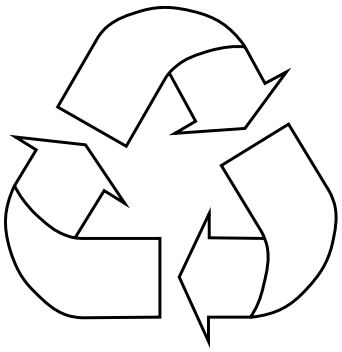

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